United States
Environmental Protection
Agency

Solid Waste and
Emergency Response

EPA 540-R-95-145
9200.2-19
PB96-963210

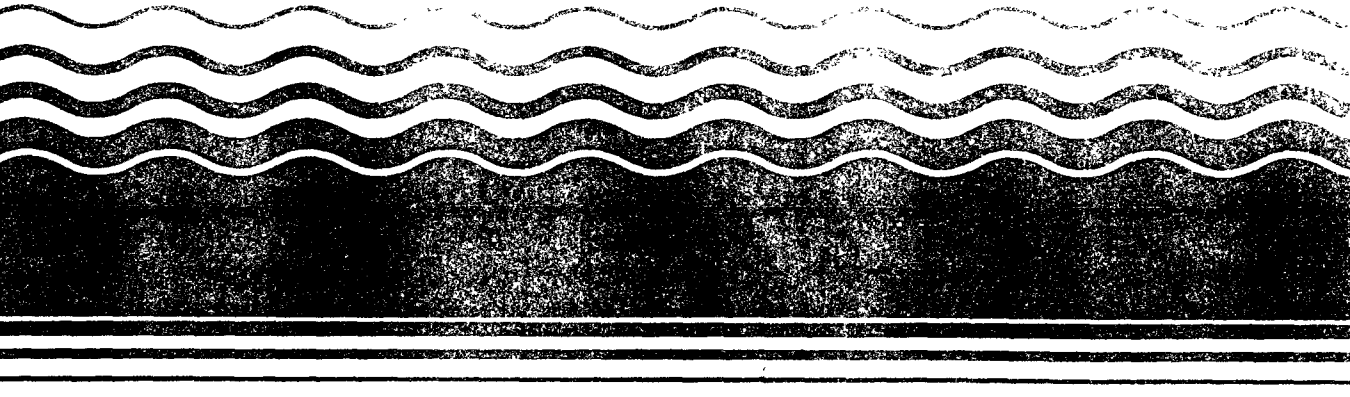
Superfund

EPA

Progress Toward Implementing Superfund

Fiscal Year 1992

Report to Congress



Publication 9200.2-19

Progress Toward Implementing SUPERFUND

Fiscal Year 1992

REPORT TO CONGRESS

Required by
Section 301(h) of the
Comprehensive Environmental Response,
Compensation, and Liability Act (CERCLA) of 1980,
as amended by the Superfund Amendments and
Reauthorization Act (SARA) of 1986

OFFICE OF EMERGENCY AND REMEDIAL RESPONSE
U.S. ENVIRONMENTAL PROTECTION AGENCY

51-037-Cov

Notice

This Report to Congress has been subjected to the U.S. Environmental Protection Agency's (EPA's) review process and approved for publication as an EPA document. For further information about this Report, contact the Policy and Analysis Staff in the Office of Program Management, Office of Emergency and Remedial Response at (202) 260-2182. Individual copies of the Report can be obtained from the U.S. Department of Commerce, National Technical Information Service (NTIS) by writing to: NTIS, 5285 Port Royal Road, Springfield, VA 22161, or calling (703) 487-4650.

Foreword

The Environmental Protection Agency (EPA) continued its progress in protecting public health, welfare, and the environment through the Superfund program in fiscal year 1992 (FY92). As the Superfund program reached its twelfth year, the Agency had begun work at nearly 96 percent of the 1,275 sites on the National Priorities List (NPL). (These 1,275 NPL sites include 1,150 general or non-federal sites and 125 federal facility sites.) EPA is pleased to submit this Report documenting the fiscal year's achievements.

Section 301(h) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or Superfund), as amended by the Superfund Amendments and Reauthorization Act of 1986, requires the Agency to report annually on response activities and accomplishments and to compare remedial and enforcement activities with those undertaken in previous fiscal years. As a result of emphasis on remedial construction, 88 NPL sites were placed in the construction completion category during the fiscal year, bringing the program total to 149 sites. The Agency also started nearly 90 remedial investigation/feasibility studies, more than 170 remedial designs (RDs), and more than 110 remedial actions (RAs) during the fiscal year.

EPA has continued its successful efforts to compel potentially responsible parties (PRPs) to clean up hazardous waste sites. PRPs began more than 70 percent of the RDs and RAs started in FY92. EPA entered into 241 enforcement agreements with a potential value of more than $1.4 billion; this is the third consecutive year in which Superfund enforcement agreements achieved over $1 billion in clean-up commitments. The Agency and PRPs have now started more than 3,040 removal actions, including 380 during FY92. Federal facility accomplishments have shown dramatic increases; 104 of the federal facility sites on the NPL are now covered by interagency agreements for clean-up activities. EPA also continued to encourage public involvement in the Superfund process, to enhance partnerships with states and Indian tribes, and to encourage the use and development of treatment technologies.

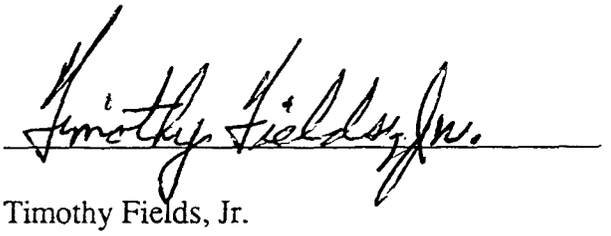
In addition to providing an overall perspective on progress in the past fiscal year, this Report contains the information Congress specifically requested in Section 301(h) of CERCLA, including a report on the status of remedial actions and enforcement activity in progress at the end of the fiscal year and an evaluation of newly developed feasible and achievable treatment technologies. The Report also includes a description of current minority firm participation in Superfund contracts and EPA's efforts to encourage their increased participation,

Foreword (continued)

as required by Section 105(f). The Report fulfills the requirement of Section 301(h)(1)(E) for an annual update on progress being made at sites subject to review under Section 121(c). Appendix D consists of a matrix that charts the progress of EPA and other government organizations in meeting Superfund-related statutory requirements. This Report also satisfies other reporting requirements of Section 121(c); the *EPA Annual Report to Congress: Progress Toward Implementing CERCLA at EPA Facilities as Required by CERCLA Section 120(e)(5)*. The EPA Inspector General's report on the reasonableness and accuracy of the information in this Report, as required by CERCLA Section 301(h)(2), is included as Appendix E.

Appendix G is included to give an overall summary of the Superfund Program in fiscal years 1992 through 1994.

Carol M. Browner
Administrator



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Acknowledgments

The Environmental Protection Agency appreciates the contributions made by staff members throughout the Agency's management and program offices, as well as other federal agencies and departments. Within the Office of Solid Waste and Emergency Response, which manages the Superfund program, contributors included: Jim Fary (project manager), Gayle Dye, Dave Evans, Linda Garczysnki, Rafael Gonzalez, Justin Karp, James Maas, Jim McMaster, Caroline Previ, Robin Richardson, Michelle Whitehead, and Ed Ziomkoski, from the Office of Program Management; Henry L. Longest, II, and Betti VanEpps, from the Office of Emergency and Remedial Response; Barbara Hostage, Dave Lopez, and Esther Williford, from the Emergency Response Division; George Alderson, Kirby Briggs, Hugo Fleischman, Jo Ann Griffith, Diana J. Hammer, Carol Jacobson, Jeff Langholz, Kenneth Lovelace, Shahid Mahmud, Carolyn Offutt, Bill Ross, and Melissa Shapiro, from the Hazardous Site Control Division; Barbara Bach, Susan Griffin, Jim Konz, Lisa Matthews, Delores Rodgers-Smith, Chuck Sands, and Suzanne Wells, from the Hazardous Site Evaluation Division; Scott Blair and Pat Kennedy, from the Office of Waste Programs Enforcement; and Jeff Heimerman and Meg Kelly, from the Technology Innovation Office.

Additional key contributions from other Environmental Protection Agency offices were provided by: Betty Bailey, Jonathon Cannon, and Elizabeth Craig, Office of Acquisition Management; Howard Wilson, Office of Administration and Resources Management; Deborah Banks, Maryann Froelich, Stacey Greendlinger, and Tony Wolbarst, Office of Air and Radiation; Steve Herman, Linda Rutsch, Augusta Wills, and Jim Woolford, Office of Enforcement; Earl Salo and Lee Tyner, Office of General Counsel; Stuart Miles-McLean, Office of Policy, Planning, and Evaluation; Steven James, John Martin, Richard Nalesnik, Peter Preuss, and Louis Swaby, Office of Research and Development; and George Mori and Becky Neer, Office of Small and Disadvantaged Business Utilization.

Contributions from other federal agencies and departments were provided by: Dr. William Cibulas, Jose Irizarry, and Dr. Ralph O'Connor, Agency for Toxic Substances and Disease Registry; Keith Frye, Department of Energy; Lt. Col. Steve Walker, Department of Defense; and Mary Morton, Department of Interior.

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Executive Summary

As the Superfund program entered its twelfth year in December 1991, the U.S. Environmental Protection Agency (EPA or "the Agency") continued to fulfill the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) for protecting public health, welfare, and the environment. CERCLA requires that EPA update Congress each year on the status of the Superfund program. This Report fulfills the requirement.

EPA is committed to accelerating the pace of hazardous waste site cleanup. Fulfilling this commitment, the Agency completed clean-up activities to place a record 88 National Priorities List (NPL) sites in the construction completion category during fiscal year 1992 (FY92). By the end of the year, work had occurred at nearly 96 percent of the 1,275 sites on the NPL, including 40 sites that have been deleted. Leaving a total of 1,183 sites currently listed on the NPL for fiscal year 1992.

This Report presents information on the initiatives undertaken by the Agency during FY92 to enhance progress under the Superfund program. This Report also identifies the Agency's accomplishments, highlighting those of FY92. Exhibit ES-1 summarizes FY92 program accomplishments. Exhibit ES-2 provides a comparison of FY92 accomplishments with those of previous years and total program accomplishments.

Accelerating the Pace of Site Cleanup

Aggressively pursuing the acceleration of site cleanup, the Agency focused on achieving construction completion at sites and on introducing and implementing a new model for cleanup. The Agency also continued to implement measures recommended by the 1991 30-Day Study Task Force to streamline the activities in the clean-up process.

By concluding clean-up activities at 88 NPL sites, the Agency more than doubled the number of sites in the construction completion category. These completions brought the program total of NPL sites in the construction complete category to 149, a 144 percent increase over the 61 sites in that category at the end of FY91.

A new model for Superfund clean-up action was introduced during the fiscal year to streamline the clean-up process. The Superfund Accelerated Clean-Up Model (SACM) will allow for rapid reduction of risks at Superfund sites and restoration of the environment over the long term. SACM introduces significant improvements to the existing clean-up process by

- Eliminating sequential and duplicative studies as site assessment and investigation activities are combined;
- Removing the existing overlap between the types of clean-up actions done under the Superfund removal program and those done under the remedial program, to save time and money; and
- Redefining Superfund clean-up actions as early actions and long-term actions with complementary applications.

EPA Regions initiated SACM pilot projects during FY92 to explore the benefits of the new clean-up model.

Implementing 30-Day Study Task Force

Exhibit ES-1
Summary of Fiscal Year 1992 Superfund Activities

Remedial Activities		
Percentage of National Priorities List Sites Where Work Has Begun		96%
Sites Classified as Construction Completions as of September 30, 1992		149
Sites with Remedial Activities in Progress on September 30, 1992		936
Records of Decisions Signed[1]		126
Remedial Investigation/Feasibility Starts[2]		90
Fund-Financed		50%
Potentially Responsible Party-Financed		50%
Remedial Investigation/Feasibility Studies in Progress on September 30, 1992		920
Remedial Design Starts[2]		170
Fund-Financed		30%
Potentially Responsible Party-Financed		70%
Remedial Designs in Progress on September 30, 1992		412
Remedial Action Starts[2]		110
Fund-Financed		30%
Potentially Responsible Party-Financed		70%
Remedial Actions in Progress on September 30, 1992		354
Removal Activities		
Removal Action Starts[2]		380
Fund-Financed		280
Potentially Responsible Party-Financed		100
Removal Action Completions[2]		340
Fund-Financed		270
Potentially Responsible Party-Financed		70
Site Assessment Activities		
CERCLIS Sites Added[2]		1,800
Preliminary Assessments Conducted[2]		1,900
Site Inspections Conducted[2]		1,300
National Priorities List Site Activities to Date		1,275
Sites Proposed for Listing During Fiscal Year 1992		30
Final Sites Listed During Fiscal Year 1992		0
Sites Proposed for Deletion During Fiscal Year 1992		9
Sites Deleted During Fiscal Year 1992		2
Enforcement Activities		
Settlements for All Potentially Responsible Party Response Activities	241	($1.4 billion)[3]
Remedial Design/Remedial Action Settlements	90	($1.2 billion)[4]
Unilateral Administrative Orders Issued (All Actions)	110	N/A
Cost Recovery Dollars Collected	N/A	($185.3 million)
Accomplishments at Federal Facility Sites		
Records of Decision Signed		46
Remedial Investigation/Feasibility Study Starts[2]		100
Remedial Design Starts[2]		40
Remedial Action Starts[2]		30

1 Records of decision signed for Fund-financed and potentially responsible party-financed sites.
2 Numerical values for accomplishments based on information from CERCLIS have been rounded.
3 Estimated value of work potentially responsible parties have agreed to undertake.
4 Remedial design/remedial action settlements include remedial design/remedial action consent decrees and unilateral administrative orders with which potentially responsible parties have stated their intention to comply.

Sources: CERCLIS; Office of Waste Programs Enforcement; Office of Emergency and Remedial Response; *Federal Register* notices through September 30, 1992.

51-013-10M

Exhibit ES-2
Summary of Program Activity by Fiscal Year

	FY80-86 Total	FY87	FY88	FY89	FY90	FY91	FY92	Total[1]	Total[2]
Removal Completions[3]	810	230	320	260	290	270	340	2,520	2,560
National Priorities List Sites[4]	901	964	1,194	1,254	1,236	1,245	1,275	1,275	1,275
CERCLA Sites[3]	25,200	27,600	30,000	31,900	33,600	34,200	36,400	36,400	36,400
Preliminary Assessments Conducted[3]	20,200	4,000	2,900	2,200	1,600	1,300	1,900	34,100	34,100
Site Inspections Conducted[3]	6,400	1,300	1,200	1,700	1,900	1,900	1,300	15,700	15,700
Remedial Investigation/ Feasibility Study Starts[3]	660	210	170	170	170	70	90	1,540	2,080
Records of Decision Signed[5]	199	77	152	136	149	175	126	1,014	1,117
Remedial Design Starts[3]	120	110	120	180	130	160	170	990	1,100
Remedial Action Starts[3]	70	70	70	110	80	100	110	610	700
National Priorities List Deletions	13	0	4	11	1	9	2	40	40

[1] Includes only activities where Fund monies were spent. The total includes Fund monies spent at enforcement-lead sites to oversee PRP activities.
[2] Also includes activities conducted by federal facilities and states where no Superfund resources were used.
[3] Numerical values for accomplishments based on information from CERCLIS have been rounded.
[4] Figures reported in this row represent the cumulative total of final, proposed, and deleted sites as of September 30, 1992. At the end of FY92, there were 1,183 final, 52 proposed, and 40 deleted sites. This includes 125 federal facility sites (116 final and 9 proposed)
[5] Includes new and amended records of decision.

Sources: * CERCLIS; Office of Emergency and Remedial Response; *Federal Register* notices through September 30,1992. 51-013-9J

recommendations, the Agency also engaged in efforts to streamline remedy planning, selection, and design. The Agency worked to develop presumptive remedies, technology-based standards, and soil trigger levels to standardize remedy planning and selection. The Agency also worked to shorten the remedy design phase for sites where the extent of remedial action cannot be readily determined, facilitate the resolution of site-specific issues that commonly cause delays in the clean-up process, and accelerate private party cleanups.

Other Major Initiatives

In addition to efforts aimed at accelerating the pace of cleanup, the Agency implemented measures to improve other aspects of the Superfund program:

- To strengthen program management and accountability, the Administrator appointed the National Superfund Director and created the Superfund Revitalization Office (SRO). The mission of SRO is to improve the effectiveness and efficiency of Superfund cleanup and administration, and to ensure equity in Superfund enforcement.
- To promote consistency in risk assessment and risk management, the Agency implemented 30-Day Study Task Force recommendations. As a first step, the Agency conducted reviews of Superfund risk assessment guidance and risk characterization practices, targeting areas needing improvement and coordination with other EPA programs. To examine issues that may lead to inconsistency in deciding the appropriate clean-up actions for sites, EPA established the National Superfund Risk Management Workgroup.
- To promote increased use of innovative treatment technologies, the Agency engaged in initiatives to demonstrate the technologies and centralize access to information about them.
- To better balance its environmental mission

with effective contract management, the Agency engaged in efforts to improve contract management and accountability, eliminate excess contract capacity, control costs, and secure quality work from contractors.

- To enhance public outreach and communications, the Agency adopted new measures of Superfund progress and developed informative publications.

Site Evaluation Accomplishments

EPA continued its progress in identifying and assessing newly discovered sites. At the end of FY92, there were more than 36,400 sites identified in the CERCLA Information System (CERCLIS), the Superfund inventory of potentially threatening hazardous waste sites. EPA had completed site assessment activities at nearly 95 percent of these sites and determined that 1,275 of these sites should be proposed to or listed on the NPL.

To improve site evaluation, the Agency undertook projects to address the technical complexities associated with both lead- and radionuclide-contaminated sites. To better assess the effects of lead contamination, EPA continued work on the Integrated Exposure Uptake Biokinetic Model (IEUBK) and the Three City Lead Study. The IEUBK model is a tool that will aid the development of risk assessment procedures for lead-contaminated soil. The Three City Lead Study will determine whether a reduction of lead in residential soil will result in a decrease of blood-lead levels in children exposed to the contaminant.

To improve assessment of sites involving radionuclide contamination, EPA generated guidance documents for conducting assessments, conducted technology demonstrations, and increased Headquarters assistance to the Regions.

Emergency Response Accomplishments

To protect human health and the environment from immediate or near-term threats, the Agency and potentially responsible parties (PRPs) started 380 removal actions and completed more than 340 during FY92. Of the 380 removal actions begun in FY92, PRPs financed nearly 100 and EPA financed more the 280. PRPs also financed 70 of the more than 340 completed removal actions.

Also during the year, the Agency expanded the use of removal authority for "early actions." This expanded use of removals to reduce immediate risks and expedite cleanup at NPL sites is a key element of SACM. EPA applied the early action approach to 13 sites during FY92, drawing on $37 million of funds allocated for this purpose.

Other FY92 emergency response highlights include Environmental Response Team accomplishments (61 removal actions, 5 oil spills, and 2 international actions), completion of two volumes of the *Superfund Removal Procedures Manual*, and promulgation of a regulation dealing with the adjustment of reportable quantities for 31 hazardous substances.

Remedial Accomplishments

Remedial accomplishments during the fiscal year reflect the Agency's continued efforts to accelerate the overall pace of cleanup and complete clean-up activities at an increasing number of sites. At the end of FY92, work had occurred at nearly 96 percent of the 1,275 sites on the NPL, and clean-up activities had been completed to place 149 sites (nearly 12 percent) in the construction completion category. During the year, the Agency or PRPs also started nearly 90 remedial investigation/feasibility studies (RI/FSs), more than 170 remedial designs (RDs), and more than 110 remedial actions (RAs). In addition, the Agency signed 126 records of decision (RODs) at Fund-financed or PRP-financed sites.

Proceeding with efforts initiated under the 30-Day Study, EPA worked to develop presumptive remedies for municipal landfill, wood-treating, contaminated ground-water, and solvent-contaminated sites. In other initiatives, the Agency worked toward developing standard soil trigger levels, established a construction completion category, and finalized a directive on ground-water remediation to ensure a consistent approach at

Superfund and RCRA sites. The Agency also took measures to demonstrate and provide information on innovative treatment technologies to encourage their use at Superfund sites. To this end, EPA continued the Superfund Innovative Technology Evaluation Program, the Superfund Research Grants Program, and programs to provide technical assistance, information, and training.

Enforcement Accomplishments

Enforcement accomplishments for FY92 directly reflect the Agency's continuous commitment to maximize PRP involvement in financing and conducting cleanup, and to recover Superfund monies expended for response action. PRPs financed more than 70 percent of the RDs and RAs started in FY92. For the third consecutive year, the Agency achieved enforcement agreements with PRPs worth more than $1 billion in response work, reaching 241 settlements worth more than $1.4 billion during FY92. In addition, cost recovery settlements and collections increased in FY92 over previous years. The Agency achieved $250.6 million in cost recovery settlements, as compared to $144.3 million in FY91. Cost recovery collections in FY92 were $185.3 million, as compared to $83.4 million in FY91.

Enforcement initiatives in FY92 focused on improving the efficiency and fairness of Superfund enforcement. The Agency adopted a phased approach to streamline enforcement-related activities and support the faster and more efficient cleanups envisioned under SACM, while continuing to maximize the amount of response work undertaken by PRPs. In another initiative, the Agency issued guidance on early *de minimis* settlements to expedite and improve the negotiation process and reduce transaction costs for EPA and PRPs. In rulemaking activities, EPA finalized the lender liability rule to clarify the secured creditor exemption provided under CERCLA, and proposed a rule for standardizing and streamlining the cost recovery process.

Federal Facility Cleanup

Federal departments and agencies are responsible for implementing CERCLA at federal facility sites. To ensure federal facility compliance with CERCLA requirements, EPA provides advice and assistance, oversees activities, and takes enforcement action when appropriate. As of the end of FY92, there were 1,709 federal facility sites identified on the Federal Agency Hazardous Waste Compliance Docket. Of the sites on the docket, 125 were proposed to or listed on the NPL, including 116 final and 9 proposed sites. Activity during the fiscal year at these federal facility NPL sites included starting approximately 100 RI/FSs, 40 RDs, and 30 RAs and signing 46 RODs. As a result of 12 interagency agreements executed during the year, 104 of the 116 final federal facility NPL sites were covered by enforceable agreements for cleanup.

To clarify the roles of EPA and other federal departments and agencies with regard to NPL sites, Update 12 to the NPL, published in February 1992, distinguishes federal facility sites from non-federal sites. Other federal facility initiatives during the year focused on military base closures, acceleration of cleanups, interagency forums to address restoration issues, and innovative technology use for cleanup.

Superfund Program Support Activities

EPA took measures in FY92 to enhance support activities in the Superfund program, including efforts to improve community relations, enhance public access to information, strengthen EPA's partnership with states and Indian tribes, and increase minority contractor utilization.

In efforts to help citizens become more knowledgeable about the technical and scientific aspects of Superfund sites, and better prepared to participate in the clean-up process, EPA awarded 37 Technical Assistance Grants (TAGs) to community groups in 9 Regions. Continuing to streamline the TAG program, EPA promulgated the TAG final rule to simplify procedures. Also, EPA revised and expanded its community relations skills course and developed several publications and fact sheets for use by EPA community relations staff and the public.

The Agency worked to improve public access to Superfund information. FY92 marked the end of EPA's five-year plan to standardize and manage the extensive Superfund document collection and incorporate it in public information and outreach

activities. The Agency worked closely with the National Technical Information Service (NTIS) to increase public awareness of the document distribution services offered by NTIS.

To promote its partnership with states and Indian tribes in the Superfund clean-up process, EPA assisted in developing comprehensive state and Indian tribe Superfund programs under 51 core program cooperative agreements (CPCAs). As a result of EPA's efforts, states and Indian tribes initiated two RI/FSs, five RDs, six RAs, and two removal actions during the fiscal year. EPA involved Indian tribes in Superfund activities by awarding site-specific cooperative agreements and CPCAs to the All-Indian Pueblo Council, the Inter-Tribal Environmental Council of Oklahoma, and the Navajo Nation.

To assist small and disadvantaged businesses, EPA, through direct and indirect procurements, awarded over $44.5 million worth of contracts and subcontracts in FY92 to minority contractors to perform Superfund work. This amount represents almost six percent of the total dollars obligated to finance Superfund work during the year. In cooperation with the National Association of Minority Contractors, EPA conducted four training seminars to assist minority contractors in becoming more successful in winning Superfund contracts. EPA also hosted its annual minority business enterprise and women's business enterprise workshops to familiarize minority and women business owners with the contracting opportunities available in the Superfund program.

Estimate of Resources Required to Implement Superfund

Under Executive Order 12580, EPA is required to estimate the resources needed to implement Superfund. Since the enactment of CERCLA in 1980, Congress has provided Superfund with $10.5 billion in budget authority (FY81 through FY92). This includes $1.7 billion for FY81 through FY86, and $8.8 billion for the post-SARA period, FY87 through FY92.

Long-term resource estimates needed to implement Superfund are based on the Outyear Liability Model (OLM). The OLM estimate of the cost to complete cleanup of current NPL sites for FY93 and beyond is more than $16.4 billion for a total estimated cost for the program of $26.9 billion.

Organization of this Report

Information prepared for this Report is assembled in response to Congressional requirements specified in CERCLA. Exhibit ES-3 is a guide to the information required under CERCLA and its location in the Report.

Exhibit ES-3
Statutory Requirements for the Report

CERCLA Section	CERCLA Requirement	Report Section	Report Content
301(h)(1)	Annual report to Congress on the progress achieved in implementing Superfund during the preceding fiscal year	Chapter 1	Efforts to accelerate the pace of cleanup
		Chapter 2	Initiatives to improve the Superfund program
		Chapter 3	Site evaluation accomplishments
		Chapter 4	Emergency response accomplishments
		Chapter 5	Remedial accomplishments
		Chapter 6	Enforcement accomplishments
		Chapter 7	Federal facility progress
		Chapter 8	Community relations, state and Indian tribe, and public outreach activities
301(h)(1)(A)	Detailed description of each feasibility study (FS) at a facility	Section 5.2	Overview discussion of RODs signed during the fiscal year, including the number of treatment and containment remedies selected
		Appendix C	List of RODs signed in the fiscal year
		ROD Annual Report	Abstracts of each ROD signed in the fiscal year
301(h)(1)(B)	Status and estimated date of completion of each FS	Appendix A	Status and estimated completion date of each FS in progress at the end of the fiscal year
301(h)(1)(C)	Notice of each FS which will not meet a previously published schedule for completion and the new estimated date for completion	Appendix A	Scheduled completion date published for the last fiscal year, the scheduled completion date recorded in CERCLIS as of end of the current fiscal year, and identification of schedule changes
301(h)(1)(D)	An evaluation of newly developed feasible and achievable permanent treatment technologies	Section 5.4	Evaluation of newly developed technologies through the Superfund Innovative Treatment Evaluation program
301(h)(1)(E) 121(c)	Progress made in reducing the number of facilities subject to review under CERCLA Section 121(c), which requires a report to the Congress a list of facilities for which a five year review is required, the results of all such reviews, and any actions taken as a result of such reviews	Section 5.5	Annual update on progress being made on sites subject to review under CERCLA Section 121(c)

Source: CERCLA, as amended by SARA; Office of Emergency and Remedial Response. 51-013-49D

Exhibit ES-3 (cont'd)
Statutory Requirements for the Report

CERCLA Section	CERCLA Requirement	Report Section	Report Content
301(h)(1)(F)	Report on the status of all remedial and enforcement actions undertaken during the fiscal year, including a comparison to remedial and enforcement actions undertaken in prior fiscal years	Exhibit ES-2	A comparison of actions undertaken during the fiscal year to those undertaken in previous fiscal years
		Section 5.1	Information on fiscal year remedial activity starts (including PRP involvement) with a comparison of fiscal year activities to those of the previous fiscal year
		Section 6.2	Information on fiscal year enforcement activities with a comparison of fiscal year activities to those of the previous year
		Appendix A	Information on the status of each RI/FS and RA in progress at the end of the fiscal year
		Appendix B	Information on the status of RDs in progress at the end of the fiscal year
301(h)(1)(G)	Estimates of the amount of resources, including the number of work years or personnel, which would be necessary for each department, agency, or instrumentality which is carrying out any activities to complete the implementation of all duties vested in the department, agency, or instrumentality	Sections 9.1-9.2	EPA resource estimates for CERCLA implementation
		Section 9.3	Other federal agency's and department's estimates for CERCLA implementation
301(h)(2)	Review by the Inspector General and submission of any report related to EPA's activities for reasonableness and accuracy	Appendix E	Review of the Inspector General on this Report
105(f)	Brief description of the contracts which have been awarded to minority firms under Superfund and the efforts made to encourage the participation of such firms in the Superfund program	Section 8.4	Information on minority contracting awards by EPA, states, Indian tribes, and other federal agencies using Superfund monies. EPA efforts to encourage increased minority contractor participation in the Superfund program
120(e)(5)	Annual report to the Congress concerning EPA progress in implementing remedial activities at its facilities	Section 7.4	Report on EPA progress in CERCLA implementation at EPA-owned facilities, including a state-by-state status report

51-013-50D

Chapter 1
Accelerating Cleanup

EPA revitalized Superfund during FY92, achieving clean-up goals while implementing far-reaching reforms for future cleanups. Fulfilling the commitment to accelerate the pace of cleanup, Agency efforts focused on

- Completing clean-up activities to more than double the number of sites categorized as construction completions;
- Refining the clean-up process by introducing a simplified paradigm, the Superfund Accelerated Clean-Up Model (SACM), for future cleanups; and
- Streamlining clean-up activities such as remedy planning, selection, and design and eliminating significant sources of delay.

1.1 Achieving Cleanups

Aggressively pursuing the cleanup of Superfund sites, the Agency completed clean-up activities to place a record 88 additional National Priorities List (NPL) sites in the construction completion category during FY92. As shown in Exhibit 1.1-1, fiscal year progress brought the total number of NPL sites classified as construction completions to 149, exceeding the 1991 30-Day Study Task Force recommendation of 130 sites by the end of FY92. The FY92 program total of 149 sites represents an increase of 144 percent over the FY91 program total of 61 sites. The significant rise in completions during FY92 reflects the increasing emphasis on completing construction at sites and the streamlining of documentation requirements.

Construction Completions

To better communicate Superfund progress, the Agency defined construction completion and established the construction completion category. A site is considered a construction completion site when

- All necessary physical construction of clean-up remedies is complete;
- EPA has determined that the response action should be limited to measures that do not involve construction; or
- The site qualifies for deletion or has been deleted from the NPL.

Before reaching construction completion status, a site has undergone substantial response efforts:

- The site has been assessed (preliminary assessment (PA) and site inspection (SI)) and determined to warrant placement on the NPL. If any immediate threat to human health or the environment was identified at the site, a Superfund removal action may have been taken to address the threat.
- After placement of the site on the NPL, the Agency has conducted a remedial investigation/ feasibility study (RI/FS) to further examine the nature and extent of contamination and to evaluate clean-up alternatives.
- EPA has selected a remedy for the site and has signed a record of decision (ROD) to document its selection of the remedy.
- For a site where construction of the remedy is required, EPA has completed a remedial design

Acronyms Referenced in Chapter 1

ARAR	Applicable or Relevant and Appropriate Requirement
ARCS	Alternative Remedial Contracting Strategy
CD	Consent Decree
CWA	Clean Water Act
DOJ	Department of Justice
ESI	Expanded Site Inspection
FS	Feasibility Study
HRS	Hazard Ranking System
NPL	National Priorities List
OSWER	Office of Solid Waste and Emergency Response
PA	Preliminary Assessment
PRP	Potentially Responsible Party
RA	Remedial Action
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager
SACM	Superfund Revitalization Office
SI	Site Inspection
SRO	Superfund Accelerated Clean-Up Model
USACE	United States Army Corps of Engineers

(RD) to develop plans for the construction of the selected remedy.

- To construct the remedy, EPA has undertaken and completed a remedial action (RA) at the site.

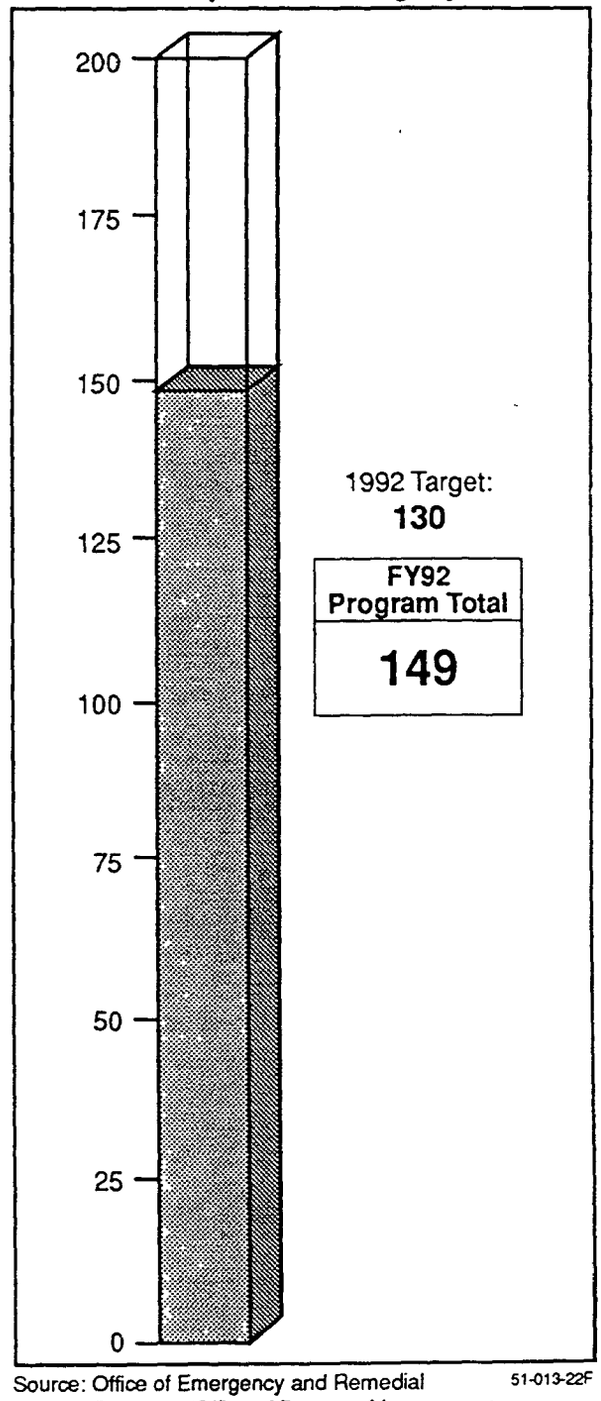
At sites where a variety of remedies are required, discrete site areas or "operable units" are defined. A site is classified as a construction completion site only when construction completion criteria have been met at all operable units of the site and a preliminary close-out has been conducted to ensure that any construction is consistent with the ROD and RD. Operation of a constructed remedy will continue until performance standards are met and desired clean-up levels are achieved.

30-Day Study Recommendations

Because of efforts during the fiscal year, the Agency surpassed the number of FY92 construction completions recommended by the 30-Day Study Task Force. These fiscal year efforts also established an infrastructure to achieve recommendations for future years.

Implementing 30-Day Study Task Force recommendations, EPA Headquarters worked with each Region to identify sites that were candidates for construction completion status for FY92 and FY93.

Exhibit 1.1-1
Superfund Sites in the Construction Completion Category



Source: Office of Emergency and Remedial Response/Office of Program Management and Hazardous Site Control Division.

51-013-22F

To achieve the national target, the Agency allowed one Region to fall short of its expected portion only if another Region could accomplish the additional construction completions needed. A workgroup reinforced the priority of achieving construction completion. Regional experts, Headquarters Office of Research and Development staff, and the Environmental Response Team provided technical assistance to the Regions to support construction completion efforts. The Agency monitored progress through a tracking system and quarterly conference calls between Regions and Headquarters. To provide the required resources, the Agency developed strategies allocating additional personnel in the Regions to direct clean-up activities and ensuring sufficient funding for future years.

1.2 SUPERFUND ACCELERATED CLEAN-UP MODEL

To accelerate the pace of future cleanup, the EPA Administrator endorsed SACM as the new model for clean-up action in the Superfund program. Implementing SACM will streamline and accelerate the clean-up process, better direct finite resources toward site clean-up activities rather than site study, and more clearly identify and communicate environmental results.

Exhibit 1.2-1 illustrates the SACM process. Under SACM, the Agency will screen and assess sites under a single, continuous site assessment process. During this assessment process, a Regional decision team will recommend short-term, "early actions" to address threats to the health and safety of the surrounding population and environment. The team will assess whether and when "long-term actions" for environmental remediation, such as ground-water restoration, are appropriate. Enforcement activities, community relations, and state involvement will occur throughout the process.

SACM will introduce significant improvements in the existing clean-up process:

- Combining site assessment activities, SACM will eliminate sequential and often duplicative studies.
- SACM will eliminate the existing overlap between the types of clean-up actions executed under the Superfund removal program and those executed under the Superfund remedial program. By redefining and distinguishing Superfund clean-up actions as early actions and long-term actions, SACM will allow each action distinct applications.

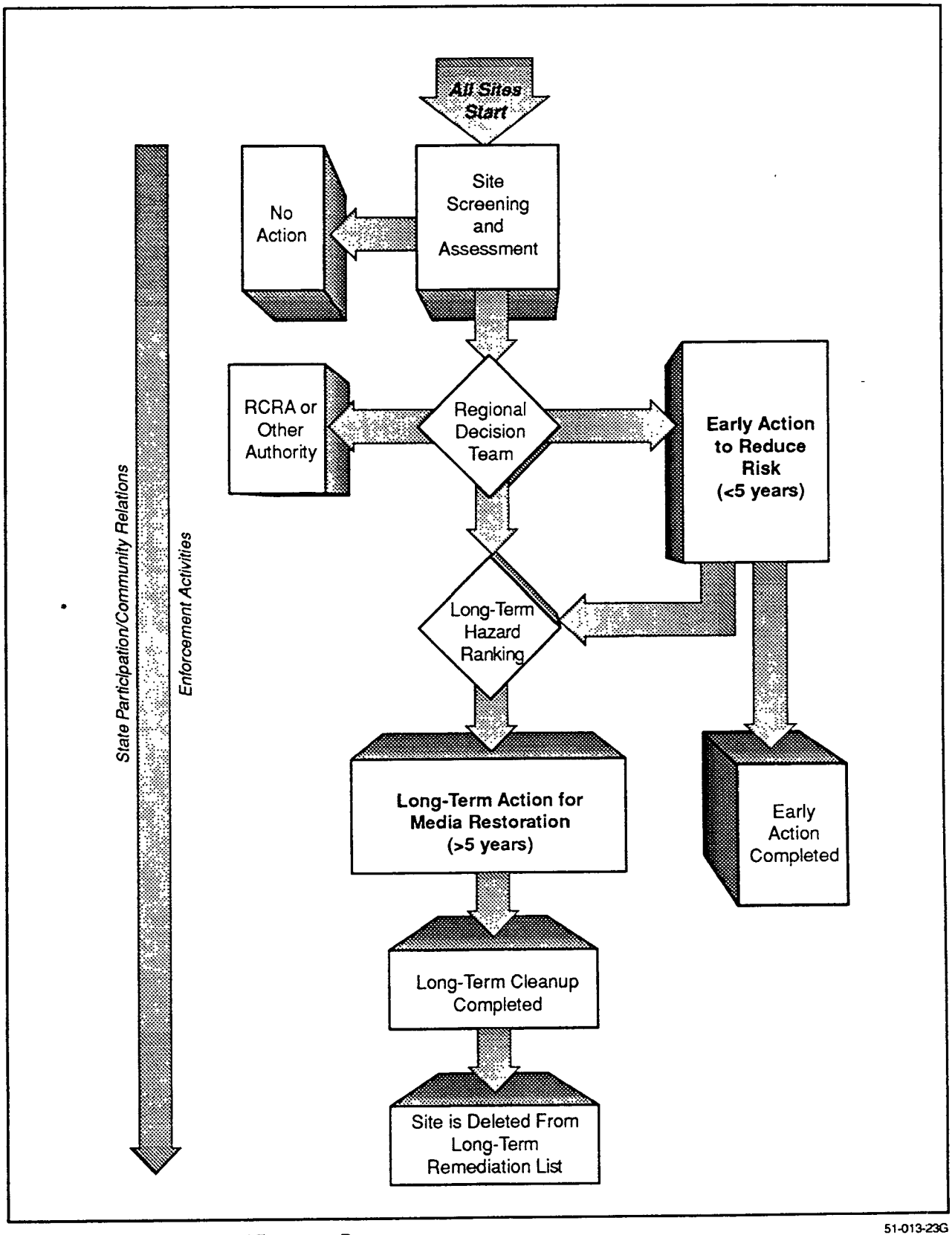
1.2.1 Single, Continuous Site Assessment

SACM will combine the various studies conducted under the existing clean-up process, thereby saving time and money. Under the existing process, sites might be assessed separately under the Superfund site assessment, removal, and remedial programs; under the Resource Conservation and Recovery Act (RCRA) program; by the Agency for Toxic Substances and Disease Registry; by states; by localities; and by private parties. The Agency found that personnel performing these assessments often did not consider the information gathered in other studies because of perceived differences in data needs and time lags during which data from previous assessments became obsolete.

The single, continuous site assessment under SACM will consolidate the elements of existing studies, providing timely, multiple-use data:

- The existing two-stage site assessment screening process will become a single screening function that will be conducted as sites are discovered. The single screening function will combine the PA, which consists of research into existing information to identify whether a potential threat exists, and the SI, which consists of sufficient sampling to assess a potential threat.
- Following the initial screening, remedial investigation (RI)-level data will be collected for sites where a potential threat exists. RI-level data provides information on the type and extent of contamination to determine the risks posed and the clean-up action required. The RI-level data will provide the information to evaluate the need for both early and long-term actions.

Exhibit 1.2-1
Superfund Accelerated Clean-Up Model



51-013-23G

Source: Office of Solid Waste and Emergency Response.

In addition, by initiating early involvement of states, potentially responsible parties (PRPs), communities, and other parties in the process, SACM will limit the need for multiple assessments by these parties.

Consolidation of assessment steps can save years in the clean-up process by more quickly eliminating the uncertainties surrounding a site. Rigid quality assurance/quality control procedures will ensure high-quality data that can be used to support multiple assessment needs.

1.2.2 Regional Decision Teams

Under SACM, Regional decision teams will be created to determine appropriate response actions for Superfund sites. The teams will recommend early actions to address threats to human health and safety and determine whether a site will be included on the Long-Term Remediation List. The teams may decide that federal action is inappropriate; in this case, the site may be deferred to other response authorities, such as state authority under RCRA.

Capitalizing on the expertise in the Regions, the Regional decision teams will generally consist of experienced managers of both Fund-lead and enforcement-lead sites, site and risk assessors, On-Scene Coordinators, Remedial Project Managers (RPMs), Community Relations Coordinators, Regional Counsel staff, and state officials. Implementation of the 30-Day Study Task Force recommendations and other Agency efforts to develop accepted standards for remediation levels and technologies will provide decision-making tools that can be used by the teams.

1.2.3 Early Actions to Reduce Immediate Risks

SACM will facilitate rapid risk reduction at Superfund sites. The Agency will address all immediate threats to human health and the environment through early actions. Examples of early actions include

- Removing soil and waste;
- Preventing access to contaminated areas;
- Capping landfills;
- Relocating people; or
- Providing alternative drinking water sources.

Early actions will expand the use of existing removal authority to expedite responses to immediate threats, especially at NPL sites. Most commonly, immediate threats at NPL sites are associated with the possibility or risk of direct contact with waste or contaminated soil, or ingestion of contaminated water. These risks can be reduced rapidly through SACM early actions. Under the existing process, the Agency commonly addresses such risks at NPL sites through remedial authority. CERCLA, however, authorizes the use of removal actions at NPL sites when the removal action is consistent with planned remedial action.

The Agency will use rapid reduction of risk through early actions as a primary measure of Superfund progress and success. To keep the public informed of progress in reducing risks, the Agency will publish an Early Action List in the *Federal Register*. The Agency will place sites on the list when a decision for clean-up action is made and will remove the site from the list when clean-up action is completed. Early actions generally will take no more than three to five years.

1.2.4 Long-Term Actions to Restore the Environment

In some cases, clean-up actions to restore the environment may take many years, sometimes decades. SACM clearly identifies environmental restoration as a long-term action. Examples of long-term actions include

- Ground-water restoration;
- Remediation of mining areas;
- Extended incineration; or
- Wetland/estuary restoration.

The Agency will determine the need for long-term actions through the SACM site assessment process. The Agency will publish a list of sites requiring long-term actions in the *Federal Register* on the Long-Term Remediation List. In most cases, any immediate threats to human health and the environment at sites on this list will have already been addressed through early actions.

1.2.5 Implementation

During the fiscal year, the Agency developed and began carrying out an implementation plan for SACM. Projects aimed at piloting the SACM process were also initiated.

The Superfund Accelerated Clean-Up Model Implementation Plan

In April 1992, senior managers from the Office of Solid Waste and Emergency Response (OSWER), the Office of General Counsel, the Office of Enforcement, and the Regional offices participated in a SACM planning session to develop a draft implementation strategy. The session focused on three areas:

- Consolidating existing assessment processes;
- Clarifying the distinction between early action and long-term action; and
- Identifying necessary program management and contracting changes.

The goal of the session was to develop a well-defined framework for SACM implementation. Discussion groups identified and prioritized more than 100 interrelated issues to be addressed. The groups developed an implementation plan that set out a timetable, identified activities, and assigned responsibilities for dealing with these issues. During FY92, the Agency began many of the activities in the implementation plan:

- Establishing Regional decision teams;
- Developing short sheets and fact sheets to provide information on the new clean-up model;
- Modifying relevant guidance; and
- Examining possible statutory changes that might be required to facilitate full implementation of SACM, such as streamlining the process required to waive removal funding and duration limits.

Soliciting additional Regional input on SACM implementation, the Agency held a national meeting in August 1992 of more than 300 EPA Superfund officials and held follow-up meetings throughout the year with each Region. Members of the newly formed Superfund Revitalization Office (SRO), led by the National Superfund Director, coordinated these meetings. (The National Superfund Director and SRO, which was created by the Administrator to improve management and accountability in the Superfund program, oversaw major Agency initiatives throughout the year. See Chapter 2.)

In addition to obtaining Regional perspectives, EPA sought input on SACM from other federal agencies, states, communities, and PRPs and began examining the roles of these parties in the SACM process.

Regional Pilots

The Regions initiated SACM pilots through an OSWER Regional pilot incentive program aimed at identifying ways to improve the Superfund process. Using a variety of approaches, the SACM pilots will explore developing a single site assessment function, employing a team approach to decision making, and conducting early actions.

Region 1 will use the time prior to beginning an RI/FS to better define the scope of the investigation to be conducted in the RI/FS. The Region will identify ways to make the RI/FS work plan more specific, aim investigations on the most promising remedial alternatives, and identify opportunities for early actions. Also, at 10 NPL sites, the Region will use decision teams to direct appropriate response actions.

Regions 2 and 8 will combine the existing processes for the expanded SI (ESI) and RI/FS into a single site assessment function. An Alternative Remedial Contracting Strategy (ARCS) contractor will perform both the ESI and RI/FS activities, and the Hazard Ranking System (HRS) scoring package will be prepared simultaneously. Candidate sites for

the pilots are high-priority Fund-lead sites that are likely to score over 28.50 on the HRS, the current criterion for listing on the NPL. Beginning the RI/FS before a site is listed on the NPL may accelerate cleanup by 22 months or more.

Region 3 will evaluate using removal actions rather than remedial actions for time and cost savings at complex NPL sites. The early actions will include short-term activities, such as excavation or source control. Region 3 will also form an interdisciplinary team to develop and implement an approach for evaluating NPL sites where removal and remedial actions could be integrated.

Using decision teams, Regions 5 and 9 will streamline site screening and assessment activities by defining the information needed in an initial site investigation to satisfy the requirements for the standard remedial, removal, and site assessment investigations. Region 9 will pilot the resulting site investigation design at 30 sites.

Through continued innovations in its "Lightning ROD" pilots, Region 6 will seek to shorten the overall Superfund process for both Fund-lead and PRP-lead sites by three years. The Lightning ROD pilot includes planning and funding clean-up activities prior to NPL listing, concurrently executing activities, and technically improving reporting and recordkeeping.

Region 10 will address surface contamination through early actions at three NPL sites. The Region will conduct an early action involving excavation and disposal to address well-characterized metal contamination of the soil at the Yakima Plating site. At two other sites with surface contamination but no ground-water contamination, the Region will expedite cleanups through early actions by conducting removal actions following the completion of the RI and risk assessment.

1.3 Other Efforts to Accelerate the Pace of Cleanup

In addition to introducing SACM, the Agency implemented recommendations made by the 30-Day Study Task Force to streamline clean-up activities and eliminate significant sources of delay. The task force suggested that time savings could be achieved by

- Standardizing elements of remedy planning and selection, thus narrowing the number of possible remedial alternatives and the time required to evaluate alternatives;
- Abbreviating the design phase at sites where the extent of necessary action cannot be readily determined;
- Facilitating the resolution of site-specific issues that cause delays in the clean-up process; and
- Accelerating PRP cleanups.

1.3.1 Standardizing Remedy Planning and Selection

To accelerate the pace of cleanups and improve consistency in remedy selection across the Regions, the 30-Day Study Task Force advocated standardizing remedy planning and selection. During FY92, the Agency began developing three approaches recommended in the study, including presumptive remedies, technology-based standards, and soil-trigger levels. Several Regions initiated pilots to further explore possible approaches for streamlining clean-up activities.

Presumptive Remedies

By associating a certain type of site with the types of clean-up remedies historically selected, the Agency will identify a site's presumptive remedies. The Agency will identify two or three viable presumptive remedies for each type of site, thereby limiting the number of remedial alternatives that must be considered while also providing decision makers with the flexibility to consider site-specific information. Use of presumptive remedies will cut time from the feasibility study (FS), in which the Agency evaluates remedial alternatives, and from the RD, in which the Agency develops the plan for constructing and implementing the technology proposed for cleanup.

During FY92, the Agency worked to develop presumptive remedies for four types of sites: municipal landfill, wood-treating, polluted groundwater, and solvent-contaminated sites. For each type of site, EPA formed a workgroup, consisting of Regional and Headquarters officials, to analyze historical information. Based on the workgroups' findings, the Agency will issue guidance on the presumptive remedies for each of the four types of sites. The Agency will also issue an overview "shortsheet" to address technical, legal, and policy issues that might arise in implementing presumptive remedies.

Technology-Based Standards

During FY92, the Agency formed a workgroup to evaluate the feasibility of establishing technology-based remedies for some types of sites. The Agency will link technologies to clean-up objectives, media, and pollutants to develop an index of the best available technologies for dealing with various site characteristics.

Soil-Trigger Levels

Because few federal or state soil clean-up levels for specific pollutants have been developed, the extent of cleanup for soil has traditionally been determined on a site-by-site basis. To facilitate the determination of soil clean-up levels, the Agency began developing soil trigger levels. A trigger level reflects a chemical concentration below which EPA would consider the chemical not to be of concern, and above which EPA would consider further study appropriate. Under certain conditions, the trigger level might also serve as the clean-up level.

During FY92, the Agency began developing soil trigger levels for the 30 top-priority chemicals found at Superfund sites. The Agency directed its focus toward trigger levels for chemicals that pose direct contact threats, particularly contaminants that could be ingested or inhaled. The Agency will also develop trigger levels for soil in cases where contamination may pose a threat to ground water.

Regional Pilots

The Regions will provide input on standardizing remedy planning and selection through projects conducted under the OSWER Regional pilot incentive program. Region 3 will review all of its municipal landfill sites to evaluate whether capping is appropriate as a standard remedy. Region 6 will draw on historical experience with similar sites to conduct focused FSs. Region 7 will develop standard clean-up goals, remedy types, and ROD and statement-of-work language for grain storage sites, polychlorinated biphenyl-contaminated sites, and coal gasification sites.

Region 9 will use plug-in RODs, modifying existing RODs used in similar circumstances, to accelerate the cleanup of the Indian Bend Wash site near Phoenix, Arizona. The northern and southern sections of the Indian Bend Wash site have similar contamination and geology. The Region will modify the RODs developed to address contamination at the northern sections in creating new RODs to address contamination at the southern sections. Using a plug-in ROD eliminates the need for a separate FS and ROD at each portion of the site, allowing cleanup to progress from the RI directly to the RD and resulting in potential time and resource savings.

1.3.2 Shortening the Remedial Design Phase

EPA explored options for shortening the design phase of cleanup to allow the construction of the selected remedy to begin earlier in the process. The 30-Day Study Task Force recommended this approach for sites where the time spent in designing the response action is of limited benefit in determining the extent of action required. The task force suggested that this approach might be appropriate at sites where large-scale excavations are necessary, where specific contamination boundaries cannot be readily defined, or where abandoned industrial facilities must be dismantled and decontaminated. In FY92, a

workgroup consisting of representatives from Headquarters, Regional offices, and the United States Army Corps of Engineers (USACE) convened to develop criteria for shortened RDs and to identify appropriate projects for pilot studies.

To facilitate the RD and construction of the remedy, the 30-Day Study Task Force recommended increasing the flexibility within the scope of work for contracts that are used to support these activities at Fund-lead sites. These contracts include the Emergency Response Clean-Up Service contracts, the ARCS contracts, and USACE pre-placed construction contracts. During the fiscal year, the Agency issued *Use of Time and Materials and Cost Reimbursement Subcontracts for Remedial Actions under the Alternative Remedial Contracting Strategy Contracts*, a directive on the expansion of the scope of work for ARCS contracts.

1.3.3 Resolving Issues that Cause Delays

The 30-Day Study Task Force found that unresolved site-specific issues between government entities could cause significant delay in remedy selections, PRP settlements, RDs, and RAs. During FY92, EPA undertook actions to identify and address the common causes of these site-specific issues and to work toward their resolution.

Managers from EPA, the Department of Justice (DOJ), and various states met to develop strategies to resolve site-specific issues. The strategies emphasize early and routine elevation of issues to senior management and management supervision of the issue resolution process. In a May 1992 memorandum, EPA provided guidance to the Regions to better address issues at sites where contamination crosses Regional or national boundaries, where technical or policy issues could set a national precedent, where conditions require national-level coordination with other federal agencies, or where there is a high level of public interest. The memorandum directed the Regions to elevate such issues and the National Superfund Director to oversee the issue resolution.

The National Superfund Director and the Regions developed and began implementing an action plan to improve EPA/DOJ interagency coordination in Superfund enforcement. Representatives of EPA and DOJ held weekly meetings to discuss ways to expedite the enforcement process, including methods that had proven successful in the past. To eliminate duplication between EPA and DOJ paperwork, the Agency recommended that EPA documents be included in the consent decree (CD), which outlines the terms of the agreement between EPA and PRPs for site cleanup. The Agency also proposed a rule clarifying EPA procedures for recovering clean-up costs from PRPs.

The Agency solicited information from the Regions and states on the common causes of EPA/state site-specific issues. Under the resulting action plan, the Agency will investigate potential conflicts with states regarding state applicable or relevant and appropriate requirements (ARARs), approaches to ARAR dispute resolution, the effect of presumptive remedies on state participation in clean-up decisions, and improvements in communicating information about EPA removal actions. To reduce the financial burden of cleanup for states, the Agency will consider allowing states to pay their statutorily required 10 percent cost share in phases or with in-kind services. The Agency will also streamline the Superfund guidance on memoranda of agreement that describe how EPA and a given state will cooperate on Superfund cleanups.

1.3.4 Accelerating the Pace of PRP Cleanups

During FY92, the Agency modified policies to eliminate significant sources of delay in PRP cleanups, as identified in the 30-Day Study. EPA issued a directive in November 1991 limiting mid-stream takeovers to eliminate delays caused by changes in lead responsibility from EPA to PRPs within a discrete phase of cleanup. In April 1992, the Agency issued a policy directing the Regions to

encourage PRPs to initiate RD work after EPA and PRPs have signed the CD rather than after DOJ has lodged the CD in court and the court has entered the CD. Initiating work at this point would eliminate the time lost between the signing of the CD and the entering of the CD in the court, which can be as long as two years.

Through the OSWER Regional pilot incentive program, the Regions pursued a variety of projects to encourage early PRP involvement in clean-up activities and accelerate the pace of PRP-lead cleanups. Several Regions piloted the use of early *de minimis* settlements for reaching clean-up agreements with parties whose contribution to the contamination at a site was relatively minor. At the Tonolli site, Region 3 developed an early waste-in list to identify candidate *de minimis* parties. This list was used to negotiate a proactive settlement with 170 *de minimis* parties at the site. By reaching early settlements with *de minimis* parties, EPA will be able to manage negotiations with the remaining PRPs more efficiently.

To achieve site cleanup more quickly at the Aquatech site, Region 4 negotiated *de minimis* settlements while conducting removal activities. Region 9 will accelerate the RD and RA at the Operating Industries, Inc., site by pressing for an early settlement with the 3,500 *de minimis* PRPs. Successful settlement with the *de minimis* parties at the Operating Industries, Inc., site would set precedents for *de minimis* settlement size and monetary value.

Region 1 began a project to identify effective financial inducements for encouraging PRPs to accelerate the pace of cleanups. At selected pilot sites, the Region will restructure the statement of work that accompanies CDs to include incentives such as discounts on oversight costs and other financial benefits for completing cleanup ahead of schedule.

Region 3 sought ways to accelerate the pace of PRP cleanups by improving resolution of EPA/DOJ issues. Through discussions with DOJ, the Region eliminated the statement of work as an attachment to the CD and, instead, addressed specific performance goals in the ROD. Deleting the statement of work from the CD eliminates ambiguities that could arise when the ROD and CD descriptions of the selected remedy differ. By including the specific performance goals in the ROD, ROD quality is improved, and legal approval can be accelerated.

Region 4 piloted a voluntary cleanup, whereby EPA will give official approval to PRPs who voluntarily undertake clean-up action prior to a site's placement on the NPL. In the Region 4 pilot, PRPs will conduct a voluntary cleanup with EPA oversight under an administrative order on consent. Implementing the concepts of SACM site assessment, PRPs in the Region 4 pilot will conduct ESI and RI/FS activities simultaneously with NPL listing activities.

Region 8 will expedite cleanup at the Annie Creek site in South Dakota through a multi-authority enforcement pilot. The Region will use both Superfund and Clean Water Act (CWA) authority to accomplish site cleanup. By combining the tools of both statutes, it is estimated that remediation will be accelerated by at least six months. Both Superfund and CWA personnel will monitor clean-up progress.

Region 10 will examine methods for more effective and efficient PRP searches. The Region will define a step-by-step process for searching for PRPs and will clarify the responsibilities of search team members, including civil investigators, cost recovery specialists, RPMs, and attorneys with the Office of Regional Counsel. The pilot will seek to streamline the PRP search process by reducing the time required to identify PRPs and reach settlements. The Region will provide the resulting recommendations to Headquarters and other Regions.

Chapter 2
Major Initiatives

In addition to efforts aimed at accelerating the pace of cleanup, the Agency launched major initiatives to improve other aspects of the Superfund program, including

- Improving management and accountability through the appointment of a National Superfund Director and the creation of the Superfund Revitalization Office (SRO);
- Promoting consistency in risk assessment and risk management;
- Advancing the use of innovative treatment technologies;
- Refining contract management; and
- Enhancing communication with the public on the success of the Superfund program in eliminating threats to human health and the environment and on progress in performing environmental restoration.

2.1 The Superfund Revitalization Office

Created by the Administrator in October 1991 to improve management and accountability in the Superfund program, SRO consists of a team of 20 "trouble shooters," led by the National Superfund Director. The mission of SRO is to improve the effectiveness and efficiency of Superfund cleanup and administration, and to assure equity in Superfund enforcement.

SRO supports this mission through two groups: the Superfund Acquisition Group and the Program and Enforcement Group. During FY92, the Superfund Acquisition Group managed implementation of the improvements to Superfund contracts programs and resolution of U.S. Army Corps of Engineers (USACE) contract issues. The SRO Program and Enforcement Group supported Agency initiatives to accelerate the pace of cleanup and oversaw matters associated with risk assessment and risk management, enforcement, federal facilities, the Department of Justice, and states. Exhibit 2.1-1 illustrates the responsibilities of these groups and highlights the major initiatives pursued by the Agency in FY92.

2.2 Promoting Consistency in Risk Assessment and Risk Management

During FY92, the Agency implemented several initiatives to enhance consistency in risk assessment and risk management in the Superfund program. By improving consistency in these areas, EPA may more accurately quantify the health threats posed by hazardous substances and improve the decision-making processes for determining how to best address such threats.

2.2.1 Risk Assessment Initiatives

Risk assessment is the evaluation of the nature and magnitude of threats to human health and the environment that result from exposure to hazardous substances. The 30-Day Study Task Force examined

Acronyms Referenced in Chapter 2

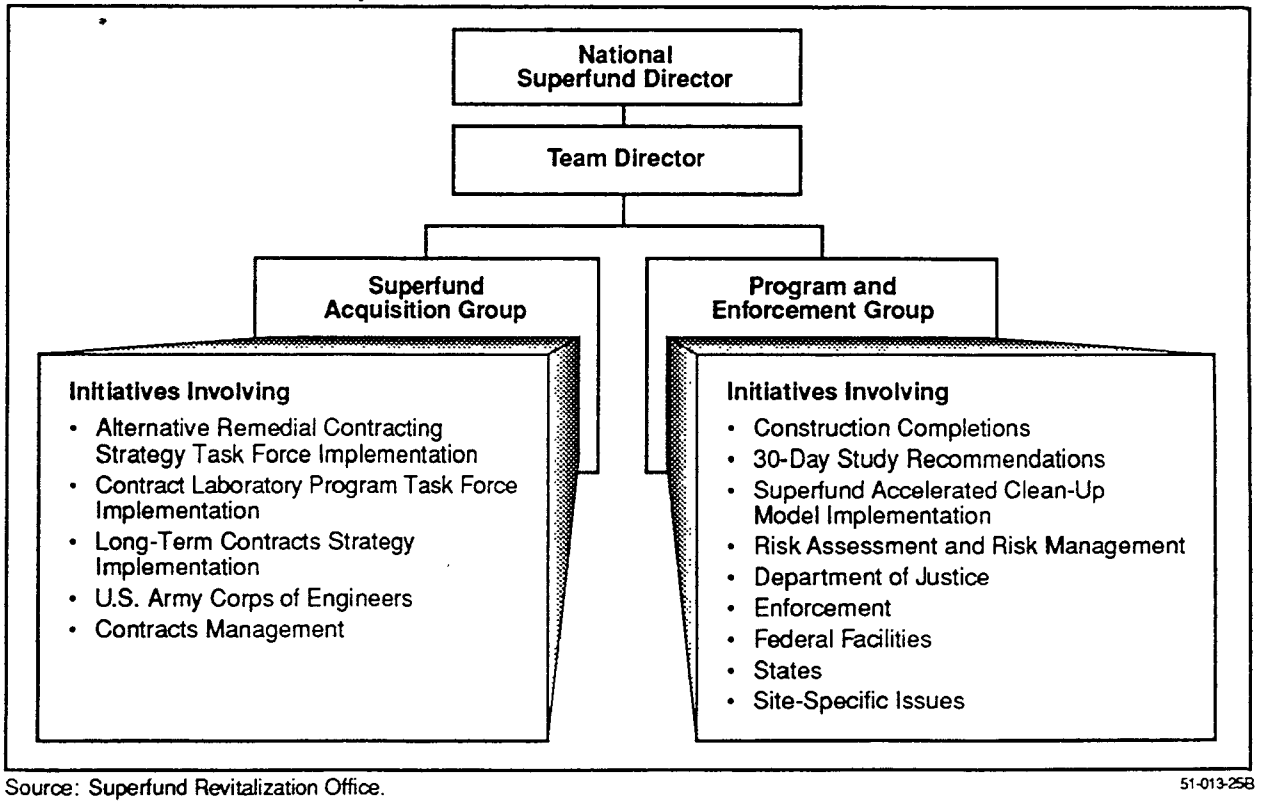
ARCS	Alternative Remedial Contracting Strategy
ATTIC	Alternative Treatment Technology Information Center
CLP	Contract Laboratory Program
DOD	Department of Defense
DOE	Department of Energy
NPL	National Priorities List
OERR	Office of Emergency and Remedial Response
OIG	Office of Inspector General
ORD	Office of Research and Development
OSWER	Office of Solid Waste and Emergency Response
PRP	Potentially Responsible Party
RCRA	Resource Conservation and Recovery Act
RME	Reasonable Maximum Exposure
SITE	Superfund Innovative Technology Evaluation
SRO	Superfund Revitalization Office
START	Superfund Technical Assistance Response Team
STL	Superfund Technical Liaison
TIO	Technology Innovation Office
TSC	Technical Support Center
USACE	United States Army Corps of Engineers

exposure assumptions used in the Superfund program to assess risks. The task force found, with minor exceptions, that the Superfund exposure assumptions were consistent with those used in other EPA programs. The Agency, however, also identified aspects of the exposure assumptions warranting further study and determined that there is a need for better coordination with other Agency programs.

30-Day Study Recommendations

As recommended by the 30-Day Study Task Force, the Agency sought internal and external review of Superfund risk assessment guidance. The Office of Emergency and Remedial Response (OERR) directed a review of all FY91 Superfund risk assessments conducted by the Agency. Regional interpretations and applications of risk assessment policies were also reviewed to identify any modifications warranted.

Exhibit 2.1-1
Superfund Revitalization Office Structure



Source: Superfund Revitalization Office.

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The Science Advisory Board and Risk Assessment Council initiated reviews of Superfund risk assessment guidance to identify specific areas that require coordination with other Agency programs. The Science Advisory Board also initiated a review of the new Integrated Exposure Uptake Biokinetic Model, which predicts the lead level in blood of persons exposed to the contaminant. At the end of FY92, the board's reviews were still in progress.

Risk Assessment Council Evaluation

In February 1992, the Risk Assessment Council completed a review of Agency-wide risk characterization practices. The Agency issued the council's findings in *Guidance on Risk Characterization for Risk Managers and Risk Assessors*. The guidance targets improvements in three principal areas of Agency risk assessments.

- *Characterization of Risk*: The council recommended that risk assessments provide a more thorough characterization of risk, including open discussion of the data and methods used. The guidance suggests that descriptive information accompany numerical risk estimates to ensure a more objective and balanced characterization of risk.
- *Comparability and Consistency*: The council recommended that the Agency work to bring about greater comparability among Agency risk assessments. For example, the estimated risk for an "average" person contracting a disease cannot be accurately compared to the risk for the "most exposed individual." The risk characterization guidance cited above advocates the use of multiple risk descriptors and ranges of exposure for both individuals and the general population to present a more complete and comparable measure of risk.
- *Use of Professional Scientific Judgement and Explanation of Special Circumstances*: The risk characterization guidance highlights the role of professional scientific judgement in overall risk assessment. The guidance calls for detailed explanations when special circumstances preclude a full risk assessment.

During the fiscal year, the Agency began developing Superfund guidance to adopt the council's risk characterization findings. The key change for Superfund risk assessment will be the use of multiple risk descriptors.

Under existing policies, Superfund risk assessments identify the reasonable maximum exposure (RME), a standard that was designed to protect the most exposed and vulnerable individuals. Although the Superfund program will continue to use the RME in evaluating the action necessary to protect human health, the Agency will also consider providing average, or central tendency figures. In addition, the Agency will consider providing estimates of population risk, which typically have not been a part of Superfund risk assessments.

Other Risk Assessment Initiatives

The Agency responded to concerns raised by industry to EPA's June 1990 policy banning potentially responsible parties (PRPs) from performing risk assessments at Superfund sites. The Agency initiated a year-long study to re-evaluate this policy, examining coordination, duration, and enforcement issues and soliciting public comments.

Other EPA initiatives to improve risk assessment for lead and radionuclides and to enhance risk assessment guidance are discussed in Chapter 3.

2.2.2 Risk Management Initiatives

Risk management is the process of identifying the actions that can or should be taken to mitigate risks and determining appropriate clean-up levels. In examining Superfund risk management, the 30-Day Study Task Force identified a number of aspects that may lead to variation and inconsistency in decision making. To examine these issues, the Agency established the National Superfund Risk Management Workgroup. During FY92, the workgroup finalized two policies:

- Using a baseline risk assessment for determining the need for remedial action; and
- Distinguishing between principal and low-level threat wastes to determine whether a remedy

using treatment, or using containment and institutional controls, is warranted.

The workgroup also began developing policies on three additional issues: selecting clean-up goals based on cumulative risk for ground water and soil, projecting future land use as it affects remedy selection, and identifying appropriate remediation time frames for ground-water actions.

2.3 Advancing the Use of Innovative Treatment Technologies

CERCLA requires that, when selecting a remedy for a Superfund site, EPA give preference to treatment remedies that reduce the toxicity, mobility, and volume of waste at a site. To increase the use of treatment remedies, the Agency works to expand the pool of proven cost-effective treatment technologies available and facilitate access to information about these technologies. Exhibit 2.3-1 illustrates the steps required to develop and implement innovative treatment technologies.

The need for effective treatment technologies is apparent from the increasing universe of contaminated sites. As of the end of FY92, there were 1,275 National Priorities List (NPL) sites, and the number will grow. In particular the number of complex federal facility sites is expected to increase rapidly. In addition to Superfund sites, there are active industrial sites that require corrective action under the Resource Conservation and Recovery Act (RCRA), underground storage tank sites that require soil and ground-water remediation, and sites that are to be cleaned up under state programs.

In 1990, the Agency created the Technology Innovation Office (TIO) to promote the use of innovative treatment technologies for site cleanup. TIO solicited input from technology users—federal and state project managers, consulting engineers, Superfund PRPs, and owners/operators of RCRA facilities—to identify barriers in using innovative treatment technologies. To eliminate obstacles to innovative technology use, the Agency is working on

- Increasing the amount of credible cost and performance data available;
- Centralizing and providing increased access to information;
- Examining ways to overcome regulatory barriers to the development and use of these technologies; and
- Providing technical support to speed cleanup and introduce technology.

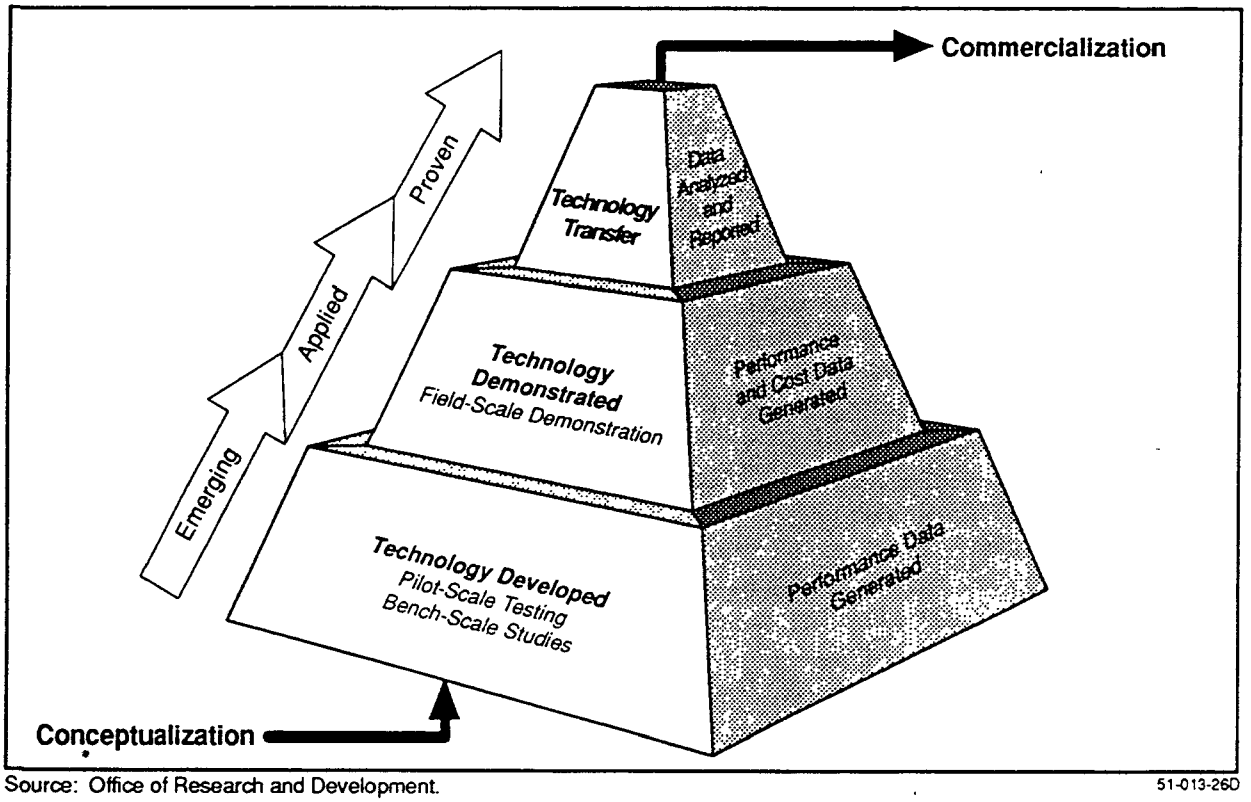
2.3.1 Increasing the Availability of Cost and Performance Data

Insufficient cost and performance data can discourage potential users from trying innovative treatment technologies. Lack of available information stems in part from the fact that many new technologies have not been tested on a pilot scale using actual waste. EPA, in conjunction with other federal agencies, states, and private groups, participated in several programs to demonstrate new treatment technologies and develop critical cost and performance data for promoting technology use and transfer.

Developing and Testing Innovative Treatment Technologies

Providing opportunities for technology transfer between the federal government and the private sector, the Superfund Innovative Technology Evaluation (SITE) program under EPA's Office of Research and Development (ORD) spent FY92, its seventh year, developing and evaluating new technologies. The program serves as a mechanism for evaluating field-scale demonstrations of innovative treatment technologies. According to EPA research, treatment technology developers who have conducted SITE field demonstrations have been involved in more than 700 treatability studies at hazardous waste sites and were selected to conduct remediation work at more than 50 percent of the sites. (See Chapter 5 for additional information on the SITE program.)

Exhibit 2.3-1
Development of Innovative Technologies



Source: Office of Research and Development. 51-013-260

TIO, Region 9, the Office of Federal Facilities Enforcement, ORD, the Department of Defense (DOD), state agencies, and Clean Sites, Inc. (a non-profit organization) sponsored a joint "public-private partnership project," using federal facilities as the proving grounds to demonstrate innovative treatment technologies. Expanding upon the concepts of the SITE program and the Department of Energy's (DOE's) Integrated Technology Demonstration Program, the project involves private companies in the design and evaluation of treatment technologies tested at the federal facility sites. The goal of the project is that all parties accept the applicability of the innovative treatment technologies being tested without asking private groups to risk a trial of new technologies at their own sites. McClellan Air Force Base in Sacramento, California, will be the first public-private partnership project site. (Additional information on the use of federal facility sites to test innovative treatment technologies is provided in Chapters 5 and 7.)

Increasingly, EPA laboratories have conducted work in conjunction with industry through the facilitating mechanisms of the Federal Technology Transfer Act. EPA's Risk Reduction Engineering Laboratory has developed several techniques. These techniques include a transportable rotary kiln incinerator; the "volume reduction unit," an advanced mobile soil washer/extractor; the alkaline metal hydroxide-polyethylene glycol and base-catalyzed decomposition chemical treatment processes; and several improved bioremediation and soil-vapor extraction techniques.

Other Information Development Efforts

Throughout FY92, EPA worked to develop information on innovative treatment technologies. The Agency convened committees and roundtables composed of federal and private experts in engineering and technological fields to support this effort.

Bioremediation Action Committee: EPA created the Bioremediation Action Committee to develop and communicate information about bioremediation, one of the most promising innovative treatment technologies. Bioremediation involves using naturally occurring bacteria to destroy contaminants. The contaminants, a carbon source, are eradicated as they are consumed by the bacteria.

The Bioremediation Action Committee is composed of experts from federal and state agencies, academia, the bioremediation industry, and potential users. The committee developed information on common goals and research needs, coordinated joint actions, generated treatability testing protocols and manuals, collected information for ORD's Alternative Treatment Technology Information Center (ATTIC) bulletin board, and communicated bioremediation experience and progress. With the committee, EPA launched a bioremediation field initiative to evaluate and communicate experience in applying bioremediation to site cleanup.

Wastech '92: Wastech '92 was a joint effort by EPA and the American Academy of Environmental Engineers to develop reports on the state-of-the-practice of innovative treatment technologies. The reports, which were under development at the end of FY92, will be reviewed by members of technical and professional societies, engineers, scientists, and members of the waste management community to develop consensus on the benefits, limitations, design criteria, and relative economic viability of innovative treatment technologies.

Federal Remediation Technologies Roundtable: The Federal Remediation Technologies Roundtable, composed of representatives of EPA, USACE, DOD, DOE, and the Department of Interior, developed a comprehensive record of performance and cost on innovative treatment technologies used by federal departments and agencies. The information compiled was documented in three publications: *Synopses of Federal Demonstrations of Innovative Site Remediation Technologies; Bibliography of Federal Reports and Publications Describing Alternative and Innovative Treatment Technologies for Corrective Action and Site Remediation;* and *Accessing Federal Data Bases for Contaminated Site Clean-Up Technologies.*

2.3.2 Centralizing Access to Information

To provide centralized access to information about innovative technologies, TIO and ORD offered several organized and targeted sources of information. Three electronic information sources include ATTIC, the Vendor Information System for Innovative Treatment Technologies, and the Clean-Up Information System. TIO and ORD prepared publications providing information on new developments and the application of innovative technologies, including *Innovative Treatment Technologies: Semi-Annual Status Report; Tech Trends* and *Ground-Water Currents* bulletins; *Innovative Hazardous Waste Treatment Technologies: A Developer's Guide to Support Services;* and *Citizen's Guide to Innovative Treatment Technologies.* The Agency also developed satellite video training seminars and conducted its annual domestic and international forum on innovative hazardous waste treatment technologies. (Additional discussion of these information sources is provided in Chapter 5.)

2.3.3 Overcoming Regulatory Barriers

During FY92, the Office of Solid Waste and Emergency Response (OSWER) evaluated barriers posed by environmental regulations to the development and commercialization of innovative technologies. Having found that the existing volume-testing limit for an exemption from certain RCRA requirements is insufficient for some pilot-scale testing of innovative treatment technologies, the Agency will propose expanding the testing limit for soil from 1,000 kilograms to 10,000 kilograms.

The Agency will also generate a directive to encourage and accelerate approval of new technology testing at permitted facilities. Testing may occur through the permit modification process or through new research and development permits. To further promote new technology development, EPA will promulgate regulations to address and facilitate the use of bioremediation.

2.3.4 Providing Technical Support

ORD provided Superfund Regional staff with direct technical support through five ORD Technical Support Centers (TSCs), Superfund Technical Assistance Response Teams (START), and the Superfund Technical Liaison (STL) Program. The goal of each of these programs is to increase the speed and quality of Superfund cleanups, and reduce their costs, by providing Regional Superfund staff with direct access to the technical expertise and resources of the Agency's active researchers.

- The TSCs provided Regional Superfund staff access to EPA's active researchers in the areas of ground-water remediation, risk assessment, engineering, site characterization, and modeling. TSCs responded to over 443 requests for technical support in 1992.
- The START program provided long-term, intensive engineering assistance to Regional staff for more than 59 sites.
- The STLs are senior ORD scientists who are permanently stationed in Regional offices. The STLs provided direct technical assistance to Regional staff, facilitated interaction with and among ORD laboratories and Headquarters offices, promoted the application of good science within the Regional waste programs, and provided feedback to ORD science planners on Regional technical needs.

2.4 Improving Agency Contracting

Seeking to balance its environmental mission with effective contract management, the Agency undertook actions for

- Improving Agency contract management and accountability;
- Eliminating excess contract capacity;
- Controlling costs; and
- Securing quality work from contractors by providing incentives for good work and penalties for poor performance.

Agency efforts were based on recommendations made in several studies of EPA contracting methods that were conducted over the past several years. These studies included an FY92 review of Agency-wide contracting by the Standing Committee on Contracts Management.

Review of the Standing Committee on Contracts Management

In March 1992, the Standing Committee on Contracts Management convened to conduct an in-depth, comprehensive review of EPA contract procurement and management practices and to identify necessary reforms. The committee identified several systemic and process changes to achieve a balance between environmental protection and fiscal management, outlining major reforms in the way EPA operates internally and does business with private companies that provide services to the Agency.

The committee recommended improving the organizational structure of Agency procurement and contract management; increasing the number of Agency procurement, Office of the Inspector General (OIG), and contract debarment and suspension staff; improving human resource procedures to enhance the Agency's ability to attract and retain quality staff for contract management; clarifying the roles of the Agency and its contractors; regulating contractor costs; and increasing the security of Agency information systems. Many committee recommendations reinforced earlier strategies adopted for individual contracts, such as the Alternative Remedial Contracting Strategy (ARCS) contracts. The Agency began implementing committee recommendations during FY92.

Continuing Contract Initiatives

Other contracting recommendations originated in task force and OIG reviews of two major Superfund contracting strategies: the ARCS program, used to provide contract support for conducting Superfund remedial clean-up actions, and the Contract

Laboratory Program (CLP), used for obtaining laboratory analysis of samples from Superfund sites.

To improve ARCS management processes and oversight, EPA initiated changes to reduce contractor program management costs, eliminate excess contract capacity, improve contract controls and financial reviews, and redesign the award fee process as a more effective tool to enhance contractor performance.

To improve the CLP, the Agency took steps to strengthen internal controls for validating data quality and monitoring laboratory performance, improve management and accountability within the program, centralize methods development, explore alternatives for laboratory certification, and reduce program costs. As recommended by the OIG, the Agency launched an effort to collect all original documentation relating to the analyses conducted under the CLP for use in any future litigation between EPA and PRPs. The Agency also undertook actions to prevent and deal with potentially fraudulent laboratory practices.

Highlights of actions taken during FY92 and the resulting improvements to EPA's contracts programs are discussed in the following sections.

2.4.1 Improving Contract Management and Accountability

To implement a national program that will balance the Agency's environmental mission with effective contract management, the Standing Committee on Contracts Management outlined actions to develop a strong management and leadership presence for EPA.

- The Agency designated a new high-level management position, Senior Resource Official, to bridge the gap in accountability between program and procurement offices and ensure well-managed contracts.
- To reinforce the new direction in EPA contracting, 85 percent of EPA's senior executives attended a training program in contract management and ethics.
- To give the office responsible for contract finance and administration more authority and accountability, EPA consolidated contracts, grants, and suspension and debarment functions under the soon-to- be-created Deputy Assistant Administrator for Acquisition and Assistance Management.

Increased Agency resources for managing contracts were also recommended by the committee. To respond, EPA allocated an additional $3 million for new procurement staff in FY92. The Agency has also increased funding for the OIG by 76 percent over the last four years. EPA will also seek to increase, by 50 percent, the staff overseeing suspension and debarment of contractors, and will broaden the focus of the traditionally criminal-oriented agenda to include suspension and debarment for poor contractor performance.

To attract and retain qualified people in contract management positions, the Agency will improve workforce planning, recruiting, training, career management, rewards, and recognition. During FY92, EPA launched one of the largest and most comprehensive contract management training programs in its history. The Agency added more hours to mandatory training for Remedial Project Managers, including both contract-specific and program-specific training. The Agency developed a training course for Regional Superfund Division Directors to assist them in determining where the Regions need to improve their contract management practices. New EPA job announcements were amended to advise all interested candidates that they will be expected to manage projects.

To oversee implementation of measures to improve ARCS, the Agency established an ARCS Council and Regional management teams. The Agency also created the position of Superfund Acquisitions Manager, in SRO, to oversee all Superfund acquisition activities and decisions.

Management of the CLP was improved as the Agency elevated national program management responsibilities from the branch level to the division level within the Hazardous Site Evaluation Division of OERR. The Agency also increased resources for management of the program. ORD was tasked to take the lead in establishing a process for standardizing the development and validation of the

analytical methods used in the CLP and in continuing a project to study methods integration.

2.4.2 Eliminating Excess Contract Capacity

The Agency took steps to eliminate excess capacity in the ARCS contracts. EPA reduced the ARCS contract capacity by $2 billion and will continue to assess and adjust ARCS contract capacity annually. The Agency also raised the ceiling for remedial actions under the contracts from $5 million to $15 million. The new ceiling will enable the Agency to use ARCS contractors to perform the larger scale remedial actions that were formerly conducted solely by USACE. The Agency also issued guidance to the Regions to assist them in assigning work, emphasizing the use of USACE to review the design and construction activities of ARCS contractors.

2.4.3 Controlling Costs

The Agency increased controls over contractor costs that are not related to environmental protection, including certain indirect costs and program management costs. Financial monitoring and reviewing were strengthened to detect unallowable costs.

Indirect Costs

EPA convened a two-day meeting with representatives of EPA's largest contractors and the Defense Contract Audit Agency to discuss plans for tightening contract management generally, and for controlling indirect costs in particular. Indirect costs, or contractor overhead costs such as office rent and general equipment costs, are billed indirectly to the government at a rate established through audits of a contractor's operating expenses.

Although "reasonable" employee morale costs (such as company picnics) are allowable under federal regulations, the Agency will no longer pay for such activities. EPA will clarify its policy on the kinds of indirect charges that it considers unacceptable.

Program Management Costs

Program management costs consist of charges directly billed to the government for administration and technical support of a contract, in contrast to costs associated with specific contract services such as site clean-up activities. During the fiscal year, the Agency took steps to reduce and regulate program management costs under the ARCS contracts.

The Agency set a national target of 15 percent for ARCS program management costs for FY92. Program management cost goals were established for each separate ARCS contract. When aggregated on a Regional basis, costs would result in the 15 percent goal.

The Agency successfully lowered program management costs for the ARCS contracts from the FY91 national average of 19.7 percent to 14.0 percent in FY92. To achieve the target and assure continued low program management charges, the Agency issued guidance to support cost management activities, provide direction for allocating program management costs to site-specific work assignments for purposes of cost recovery, and improve cost tracking by distinguishing the technical and administrative components of program management costs. EPA also notified ARCS contractors that up to 25 percent of their award fee would be based on their program management cost level.

EPA will incorporate the revised ARCS program management cost concept into future Superfund contracts so that start-up costs, administrative costs, and other clean-up support costs are distinguished, monitored, and controlled.

Financial Monitoring and Reviews

Both the Standing Committee on Contracts Management and the ARCS Task Force called for increased resources for EPA's OIG to audit Agency contracts and for improvements to contract controls. The Agency issued directives to the Regions requiring invoice reviews and emphasizing the requirement to develop independent government cost estimates for comparison to contractor cost estimates. To further the use of the independent government cost estimates, the Agency evaluated and improved existing cost estimating tools.

To improve the administration of government-owned equipment used by ARCS contractors, the Agency began evaluating the establishment of regional, government-owned, contractor-operated warehouses where all equipment not required on a regular basis could be stored and accessed by ARCS contractors. During FY92, Region 9 began a project to test this approach. The Agency also initiated a study to identify other measures for effective administrative controls of government-owned equipment used by contractors.

2.4.4 Securing Quality Work from Contractors

The Standing Committee on Contracts Management, the ARCS Task Force, and the CLP Task Force recommended measures to assure receipt of quality work from contractors. The Standing Committee on Contracts Management recommended that EPA broaden its debarment and suspension focus to include cases of poor contractor performance.

The Agency took steps to reinforce the dual-incentive approach for affecting contractor performance on ARCS contracts: factoring contractor performance in determining the amount of fee awarded to a contractor and also in assigning future work. The Agency modified the ARCS contractor performance evaluation criteria to include the quality of contract administration in addition to the quality of remedial work. The Agency included reducing program management costs and meeting program management cost targets as significant factors affecting a contractor's award fee. The Agency also issued guidance to reinforce its policy on factoring contractor performance in assigning work.

The Agency implemented both proactive and reactive controls to deter fraud in the CLP. The Agency improved internal controls for the oversight of laboratories and proposed a regulation to establish procedures for Superfund employees to follow when contract laboratories are under investigation for fraud. In a joint effort with DOD and DOE, EPA created a Data Authenticity Program to prevent fraudulent laboratory practices. The Agency also began evaluating the use of performance bonds by contract laboratories to increase accountability of the laboratories for their performance.

2.5 Enhancing Communications

To better communicate Superfund progress, the Agency improved measures of program accomplishments and launched new outreach approaches during the fiscal year.

2.5.1 Improving Measures of Superfund Success

Historically, the public has measured the Superfund program by the number of sites deleted from the NPL. Although NPL deletions are the ultimate goal of the program, they do not adequately portray the progress that the Agency has achieved in the Superfund program. To be eligible for deletion from the NPL, a site has been assessed to determine the threats posed; remedial activities have been conducted (remedial investigation/feasibility study, remedial design, and remedial action) including construction of the remedy; and the remedy has operated until clean-up goals for the site have been achieved. This process takes years and may sometimes take decades if environmental restoration is involved. Until a policy change in FY92, a site also had to undergo a five-year review after meeting clean-up goals before it was eligible for deletion from the NPL.

Given the attenuated process, the Agency has taken several steps to better define and portray Superfund progress at sites.

- In December 1991, the Agency issued a policy that, for sites where clean-up goals have been achieved, EPA would no longer wait until after a five-year review had been completed to delete a site from the NPL. As of the end of FY92, the Agency proposed to delete nine sites from the NPL under this revised policy, including two sites that were deleted during the year. EPA will

continue to monitor these deleted sites, even though they are no longer on the NPL.

- In another measure to portray progress accurately, federal facility sites have been segregated on the NPL. This distinction will illustrate more clearly the responsibilities of EPA and other federal agencies. Although the common public perception is that EPA is responsible for cleaning up all sites on the NPL, other federal agencies are responsible for implementing Superfund policies at their sites.
- As recommended by the 30-Day Study Task Force, the Agency has measured and communicated its progress in completing clean-up activities necessary to classify sites as construction completions.
- The Agency has introduced the Superfund Accelerated Clean-Up Model to clearly identify the risk reduction and environmental restoration that is accomplished under the Superfund program.

2.5.2 Public Outreach

The Agency launched a number of outreach efforts to provide the public with information on the progress of the Superfund program. Efforts included issuing several publications, coordinating public meetings, and piloting new public outreach approaches.

Publications

A number of new publications focusing on Superfund accomplishments were issued in FY92. In the *Superfund at Work* series, the Agency describes the history of Superfund activities at individual sites. The *Compendium of Good Ideas*, an SRO publication, documents successful, Regionally developed approaches to cleanup and enforcement.

To highlight individual clean-up and enforcement accomplishments, the Agency began publishing *Superfund Response Alerts*. As recommended by the 30-Day Study, the Agency issued the alerts as press releases and sent courtesy copies to members of appropriate Congressional delegations. For especially significant actions, members of the EPA administration visited Superfund sites to meet with local communities.

Efforts to promote public understanding of the role of risk in Superfund site assessments and decision making were enhanced as the Agency developed formal communication plans for major Superfund risk assessment guidance, briefed key Congressional staff on Superfund risk assessment and management procedures, developed a brochure to be distributed to citizen groups, and published an article on the risk assessment process.

Other Efforts

In June 1992, the Agency held a public meeting to discuss planned and ongoing Superfund initiatives. In this open forum, EPA was able to solicit input from the general public, industry, environmentalists, and interested groups. Following a general discussion, specific topics were examined in breakout sessions, including: fostering voluntary cleanups by PRPs; effectively involving states, communities, and other interested parties in the site clean-up process; communicating Superfund program expectations; and measuring progress of the program. The Agency will take steps to address recommendations made during the meeting and will convene additional public forums.

Seeking ways to improve outreach efforts, Region 10 launched a communications strategy through the OSWER Regional pilot incentive program. The Region employed an Outreach Specialist to convey the accomplishments of Superfund to the public, the press, Congress, and interested groups. The goals of the pilot are to improve communications and to counter criticism of the program.

Chapter 8 of this report provides more information about public outreach efforts conducted by the Agency during the fiscal year.

Chapter 3
Site Evaluation Accomplishments

By the end of FY92, more than 36,400 potentially threatening hazardous waste sites or incidents had been reported to EPA for evaluation under Superfund. EPA continued its progress in evaluating and assessing these sites. EPA also proceeded with ongoing efforts to address technical complexities associated with lead and radionuclide contamination, and improved site evaluation guidance.

3.1 Site Assessment

The site assessment phase of the Superfund process begins when EPA is notified of a potentially threatening hazardous waste site or incident. The Agency records basic information about the site in the inventory of potentially hazardous waste sites maintained in the CERCLA Information System (CERCLIS), which also tracks further actions and decisions at the site. For sites where there is an immediate threat posed to human health, welfare, or the environment, EPA conducts a removal action to address the threat. For other sites, a two-stage assessment is conducted, consisting of a preliminary assessment (PA) to determine whether a potential threat exists and a site inspection (SI) to determine the relative threat posed and to evaluate the site for possible listing on the National Priorities List (NPL). The NPL is the list of sites having the highest remediation priority.

At any point in the process, EPA may determine that the Superfund evaluation of the site is complete and that no further steps to list the site on the NPL will be taken. EPA places such sites into the "no further remedial action planned" (NFRAP) category. A NFRAP decision does not necessarily mean that there is no hazard associated with the site; it merely means that, based on available information, the site does not meet the criteria for placement on the NPL. As appropriate, a NFRAP site might be addressed under the Resource Conservation and Recovery Act (RCRA) or other authorities. A Superfund removal action may be taken at a NFRAP site or at any time during the two-stage evaluation process if there is an immediate threat to human health or the environment identified.

As noted in Chapter 1, the Agency is revising the site assessment process in the Superfund Accelerated Clean-Up Model (SACM). SACM will consolidate site assessment functions into a single, continuous process. Chapter 1 provides an overview of the revised process.

3.1.1 The Inventory of Sites (CERCLIS)

When the Agency is notified of a potential site, it records basic information about the site in CERCLIS, the national inventory of potentially threatening hazardous waste sites. EPA is notified of a site in a variety of ways, including through information provided by states, handlers of hazardous materials, and concerned citizens. For example, an individual might report concerns about a particular

Acronyms Referenced in Chapter 3

CERCLIS	CERCLA Information System
DOE	Deparment of Energy
HEAST	Health Effects Assessment Summary Tables
HRS	Hazard Ranking System
IEUBK	Integrated Exposure Uptake Biokinetic
LVF	Las Vegas Facility
NAREL	National Air and Radiation Environmental Laboratory
NFRAP	No Further Remedial Action Planned
NPL	National Priorities List
NRC	National Response Center
OERR	Office of Emergency and Remedial Response
ORD	Office of Research and Development
ORIA	Office of Radiation and Indoor Air
OSWER	Office of Solid Waste and Emergency Response
PA	Preliminary Assessment
RAGS	Risk Assessment Guidance for Superfund
RCRA	Resource Conservation and Recovery Act
RPM	Remedial Project Manager
RQ	Reportable Quantity
SACM	Superfund Accelerated Clean-Up Model
SI	Site Inspection
TIB	Toxics Integration Branch
TSC	Technical Support Center
VORCE	Volume Reduction and Chemical Extraction

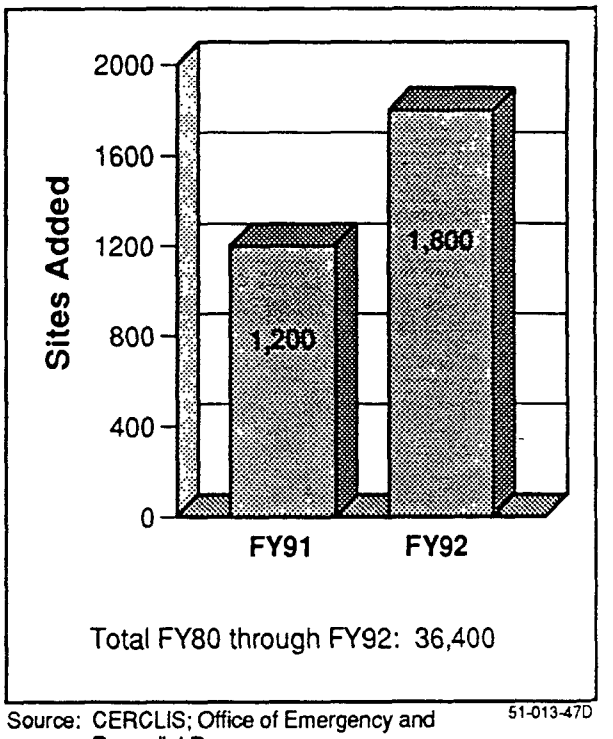
site, or local law enforcement officials may submit a formal report to EPA. Facility managers may also notify EPA of a release, as required by Section 103 of CERCLA. Section 103 specifies that a person, such as a facility manager in charge of a vessel or facility, must immediately report any release of a hazardous substance that is equal to or greater than the reportable quantity (RQ) for that substance to the National Response Center (NRC). The NRC operates a 24-hour hotline to allow for immediate notification. Penalties are imposed for failure to comply with this requirement.

As illustrated in Exhibit 3.1-1, EPA added approximately 1,800 sites to CERCLIS during FY92, bringing the total inventory of potentially threatening hazardous waste sites to be evaluated under Superfund to more than 36,400 sites.

3.1.2 Preliminary Assessments

Upon being notified of a potentially threatening hazardous waste site, EPA or the state will assess the potential threat posed by the site through a PA. The PA can include either an on-site or off-site reconnaissance to observe the site and collect

Exhibit 3.1-1
Sites Added to CERCLIS



Source: CERCLIS; Office of Emergency and Remedial Response.

51-013-47D

information. Reconnaissance activities may include an on-site visit or survey, an off-site perimeter survey, or data collection from local authorities. EPA or the state will also review existing site-specific information for early determination of the need for further action. This information might include past state permitting activities, local population statistics, and information that identifies the site's potential effect upon the environment. This review enables the Agency or state to determine whether further study of the site is necessary, whether removal assessment/action is needed, or whether the site should be categorized as NFRAP. If the PA indicates that a potential threat is posed by the site to human health or the environment, EPA will perform an SI to do a more extensive study.

As shown in Exhibit 3.1-2, EPA and states conducted nearly 1,900 PAs in FY92, an increase of more than 45 percent over the 1,300 PAs conducted in FY91. To date, EPA and states have completed PAs at nearly 34,100 sites or nearly 95 percent of the sites in CERCLIS. The Agency has classified more

than 40 percent of sites where a PA has been conducted as NFRAP. The remaining sites have proceeded to the SI-stage for more extensive evaluation. As of the close of the fiscal year, approximately 2,000 sites identified in CERCLIS required PAs to be conducted.

3.1.3 Site Inspections

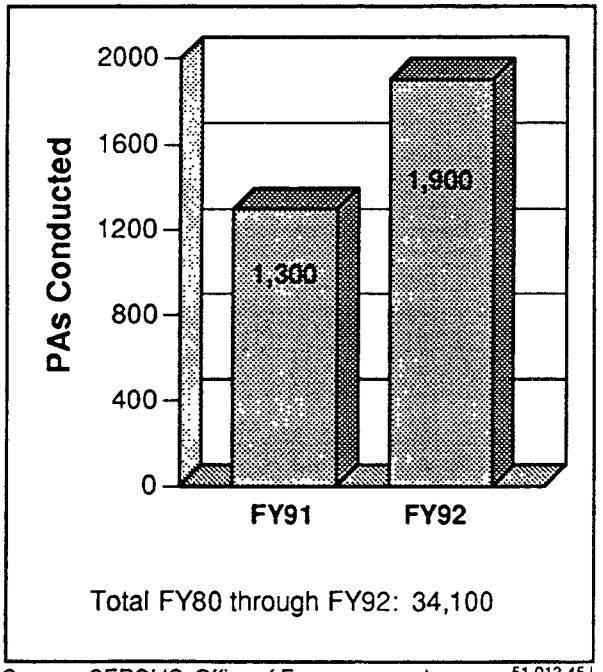
The purpose of the SI is to conduct further evaluation of the site to determine whether the site is appropriate for listing on the NPL. The SI usually includes collection and analysis of environmental and waste samples to determine

- The hazardous substances present at the site;
- The concentrations of these substances;
- Whether the substances are being released or there is potential for their release; and
- Whether the identified hazardous substances are attributable to the site.

As illustrated in Exhibit 3.1-3, the Agency completed more than 1,300 SIs during FY92 for a total of approximately 15,700 SIs conducted under the Superfund program. Most SIs conducted have resulted in NFRAP decisions and more than 1,200 have resulted in decisions to propose sites to the NPL. As of the close of the fiscal year, EPA has not yet completed SIs at approximately 3,000 sites at which data from the PA determined that an SI was necessary.

During the SI, data is gathered through increasingly focused collection efforts. At any time during the SI, EPA may make a NFRAP decision based on this data. For other sites deemed candidates for the NPL, the data will be used to calculate a score using the Hazard Ranking System (HRS). The HRS serves as a screening device to evaluate and measure

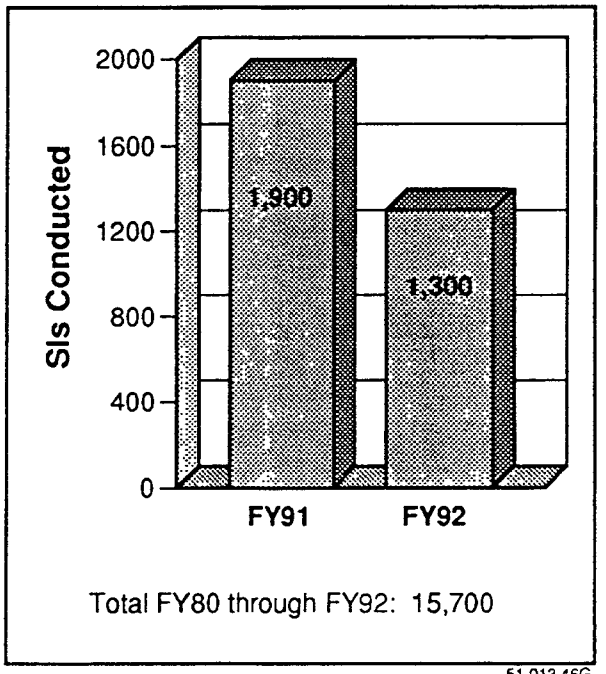
Exhibit 3.1-2
Preliminary Assessments
Fiscal Year Comparison



Source: CERCLIS; Office of Emergency and Remedial Response.

51-013-45J

Exhibit 3.1-3
Site Inspections
Fiscal Year Comparison



Source: CERCLIS; Office of Emergency and Remedial Response.

51-013-46G

the relative hazard a site poses to human health, welfare, and the environment and to determine whether placement on the NPL is warranted. The HRS evaluates four pathways for potential human exposure to contaminants from a site: ground water, surface water, soil, and air.

3.2 National Priorities List

The NPL is the list of sites to which EPA gives highest priority for remediation. EPA ranks the potential hazard of sites using the HRS to identify candidate NPL sites. If a site scores 28.50 or higher, the Agency proposes the site for listing on the NPL, solicits public comments for consideration, and then either announces the final listing of the site on the NPL or removes the site from consideration for listing (classified as NFRAP). A site on the NPL remains listed until all clean-up goals are attained and no further response action is appropriate, at which point, EPA will delete the site from the NPL.

3.2.1 National Priorities List Update

As of the end of FY92, there were 1,275 NPL sites, consisting of 1,183 final sites, 52 proposed sites, and 40 deleted sites. These sites included 30 sites proposed and 2 sites deleted during FY92; no additional proposed sites were listed as final. Exhibit 3.2-1 illustrates the historical number of final sites on the NPL since SARA was promulgated in 1986.

NPL Update 12, published in February 1992, was the first NPL update to distinguish non-federal, or general, Superfund sites from federal facility sites. Of the 1,275 proposed, final, and deleted NPL sites,

- 1,150 NPL sites were non-federal sites (1,067 final sites, 43 proposed sites, and 40 deleted sites); and
- 125 NPL sites were federal facility sites (116 final sites and 9 proposed sites).

Of the 30 sites that were proposed during FY92, 28 were non-federal sites and 2 were federal sites.

3.2.2 Relationship between CERCLIS and NPL Data

CERCLIS is used to track the discovery of and actions taken at all potentially threatening hazardous waste sites, including those that are listed on the NPL. Of the over 36,400 sites in CERCLIS at the end of FY92, 1,275 were either proposed to or listed on the NPL. Sites deleted from the NPL reflect an activity required to be reported. Although the sites on the NPL are a relatively small subset of the inventory in CERCLIS, they generally consist of the most complex and environmentally compelling cases. Under CERCLA, EPA can only use the Trust Fund for long-term remedial action cleanups at NPL sites; although Fund money can be used to undertake removal actions whether or not a site is on the NPL.

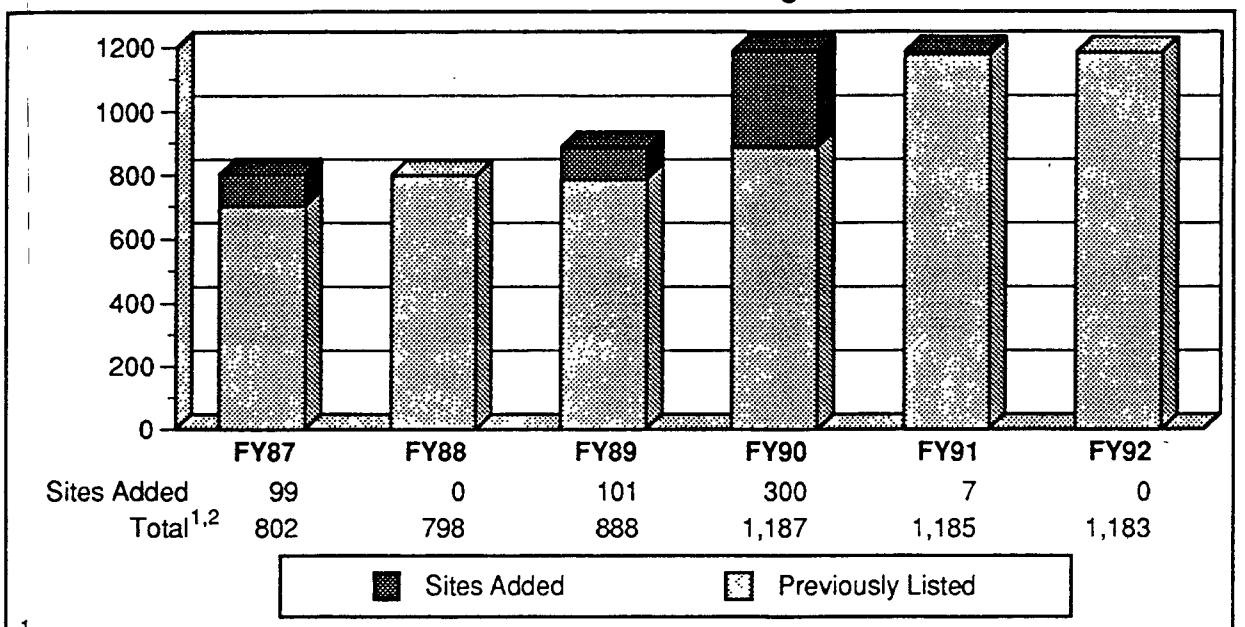
3.3 The Lead Program

Lead is one of the most frequently found toxic substances at Superfund sites. Also, lead is generally a major contaminant and health threat to children in urban areas that are not associated with Superfund sites. EPA has undertaken two initiatives in an effort to better assess the effects of lead contamination: developing the Integrated Exposure Uptake Biokinetic (IEUBK) Model and conducting the Three City Lead Study.

3.3.1 The Integrated Exposure Uptake Biokinetic Model

To aid Regional risk managers in establishing permanent lead clean-up levels for soil, EPA's Toxics Integration Branch (TIB) is developing risk assessment procedures and tools such as the IEUBK Model. This model predicts blood-lead levels in children who may be exposed to lead through air, soil, dust, drinking water, diet, and paint. The IEUBK Model uses site-specific data or, if no such data are available, default values that are typically based on national averages. Until a permanent lead clean-up

Exhibit 3.2-1
Final NPL Sites for Fiscal Year 1987 Through Fiscal Year 1992



[1] This graph illustrates *final* NPL sites only and reflects the fact that EPA deleted 13 sites from FY80 to FY86, 4 sites in FY88, 11 sites in FY89, 1 site in FY90, 9 sites in FY91, and 2 sites in FY92. The total of *final*, proposed, and deleted NPL sites as of September 30, 1992 was 1,275.

[2] The total number of sites listed on the NPL from 1983 to 1986 was 703.

Source: *Federal Register* notices through September 30, 1992. 51-013-5E

level is developed, EPA recommends an interim soil clean-up level for lead of 500 to 1,000 parts per million (ppm) for Superfund sites characterized as residential.

During FY92, EPA continued work on a site-specific IEUBK guidance manual that will assist risk assessors and managers in deciding when to use site-specific data in the IEUBK model, and in identifying the most appropriate method for collecting data. EPA continued its efforts to validate the IEUBK model by studying data from Superfund sites contaminated with lead from mining and smelting activities. Other validation studies will be conducted using urban and battery recycling sites.

During FY92, EPA's Science Advisory Board reviewed the appropriateness of using the IEUBK model to assess total lead exposure at Superfund sites. The board concluded that, although refinements in the detailed specifications of the IEUBK model are recommended, the approach used to develop the model was sound. The board stated that the model can be applied effectively for many current needs even as it continues to undergo refinement for other applications, based upon experience gained in its use. At the end of FY92, EPA was working to complete the IEUBK model, the site-specific guidance manual on the IEUBK model, and the interim *Soil Lead Directive* to establish a permanent clean-up level for lead.

3.3.2 Three City Lead Study

During the fiscal year, EPA, with the support of the Centers for Disease Control and the Department of Agriculture, completed the Three City Lead Study, a project to determine whether a reduction of lead in residential soil and dust (interior house dust and exterior soil dust) would result in a decrease of blood-lead levels of children exposed to the contaminant. The project examined groups of children in Baltimore, Boston, and Cincinnati in carefully

chosen, non-randomly selected areas within each city. Each area was chosen on the basis of several factors, including the age of housing, the reported incidence of lead poisoning, the expected turnover rate in residents, and the potential for neighborhood involvement in the project. Biological and environmental sampling results reflect this "targeting."

For all three cities, EPA conducted baseline sampling of blood, hand dust, soil, interior house dust, paint, and water. EPA also sampled exterior street dust in Cincinnati. Soil removal activities and post-removal sampling of lead contamination were completed in all three cities. An interim report entitled the *Three City Lead Study* was released July 26, 1991, containing descriptions of project designs, protocols for sampling and analyses, removal methods, problems encountered, and baseline data. During FY92, the Agency compiled specific study findings into individual city reports. In addition to the individual city study reports, EPA's Office of Emergency and Remedial Response (OERR) and Office of Research and Development (ORD) were preparing an integrated, technical, peer-reviewed report that will include information from the analyses of the combined Three City Lead Study data set.

3.4 The Radiation Program

During the fiscal year, EPA made progress in addressing technical complexities associated with site assessments, risk assessments, and clean-up technology evaluations for sites contaminated with radionuclides. Activities included developing Superfund guidance, conducting technology demonstrations and evaluations, and providing assistance to Regions.

3.4.1 Superfund Program Guidance

EPA continued its efforts to address radiation issues by contributing to several Superfund guidance documents in FY92.

Health Effects Assessment Summary Tables (HEAST): TIB cooperated with the Office of Radiation and Indoor Air (ORIA) to update information on radionuclides for HEAST. The updates improve risk assessment capabilities through the continued application of sound scientific principles. ORIA added more than 200 radionuclides to the March 1992, HEAST. Additionally, ORIA included and refined cancer-risk slope factors for radioactive decay chains and modified slope factors for external exposure.

- *Radiation Exposure and Risk Assessment Manual*: ORIA had under development the *Radiation Exposure and Risk Assessment Manual* that covers environmental pathway modeling and toxicity assessment.
- *Guidance for Data Useability in Risk Assessment*: ORIA completed the radiation-specific sections of *Guidance for Data Useability in Risk Assessment.*
- *Development of Clean-Up Levels*: ORIA began developing standard clean-up levels for radioactive materials in ground water and soil. ORIA also began developing guidance to establish criteria and standards for the cleanup of radioactive materials at federal facilities. The clean-up guidance will be developed to be consistent with the SACM process.
- *Guidance for Performing Site Inspections Under CERCLA:* ORIA and the Science Advisory Board continued work on HRS radiation issues. ORIA completed the radiation-specific section of *Guidance for Performing Site Inspections Under CERCLA* and a draft report addressing radiation site scoring under the revised HRS.

3.4.2 Technology Demonstration and Evaluation

Under the volume reduction and chemical extraction (VORCE) program, ORIA conducted a successful technology demonstration to reduce radioactivity in soils. Using soil from the NPL site at Montclair/Glen Ridge, New Jersey, the VORCE

pilot plant achieved a 56 percent volume reduction, with the concentration of radioactivity reduced by 73 percent in the cleaned soil fraction.

In May 1992, the Office of Solid Waste and Emergency Response (OSWER) published *Characterization Protocol for Radioactive Contaminated Soils* developed by ORIA as Directive 9380.1-10FS. An interagency task group consisting of representatives from EPA's OSWER and ORIA, the Department of Energy (DOE), and NRC began drafting five reports on environmental transport modeling for radionuclides.

3.4.3 Regional Assistance

EPA Headquarters provided the Regional offices with assistance to address NPL sites contaminated with radioactive materials. ORIA presented three DOE-funded, two-day workshops on RQs and Occupational Safety and Health Administration rules on protection of workers exposed to radioactivity. The workshops were held in Washington, DC; Augusta, Georgia; and Albuquerque, New Mexico. ORIA also conducted seminars on radioactive site remediation technologies for Remedial Project Managers (RPMs) and On-Scene Coordinators in Seattle, Washington, and Albuquerque, New Mexico.

The Agency established the ORIA National Air and Radiation Environmental Laboratory (NAREL), assisted by the ORIA Las Vegas Facility (LVF), as a Technical Support Center (TSC). The ORIA laboratories under the TSC program provided the following radioanalytical site-specific support to Regional programs:

- ORIA completed a VORCE pilot plant for the Montclair/Glen Ridge, New Jersey, site in Region 2. ORIA also completed laboratory screening for a Region 2 treatability study at a site in Maywood, New Jersey.
- In Region 3, the ORIA scanner van, operated by LVF, assisted in locating contaminated properties in Lansdowne, Pennsylvania. NAREL/TSC provided analytical support and a comparison of measurement techniques for the site.
- ORIA continued providing technical assistance to Region 4 for oversight of the DOE remediation efforts in Paducah, Kentucky, and Oak Ridge, Tennessee. This assistance involved reviewing CERCLA documents and providing oversight of field sampling activities. Also, Region 4 Superfund staff participated in a radiation worker safety and health pilot program sponsored by ORIA.
- In Region 5, ORIA provided risk assessment support for dealing with radionuclide contamination at the Kerr-McGee/West Chicago and DOE Mound Plant sites. NAREL/TSC provided radioanalytical support for the former DOE production facility at Fernald, Ohio, and at the Industrial Excess Landfill in Union Town, Ohio.
- In Region 8, ORIA, with assistance from NAREL/TSC, provided support to justify a no-action alternative at the Denver Radium site. ORIA and NAREL also worked with the RPM on technical issues associated with the DOE Rocky Flats site.
- ORIA and LVF assisted Region 9 in developing a site sampling and analysis plan for Norton Air Force Base. This support consisted of reviewing site survey reports and providing recommendations for characterization and remediation of alleged buried radium wastes. NAREL and LVF also assisted in the remediation activities at Hunter's Point Naval Shipyard.
- In Region 10, ORIA assisted the RPM at the Idaho National Engineering Laboratory in overseeing DOE soil treatability studies. At the Hanford site, ORIA assisted the RPM in reviewing designs for a facility to vitrify radioactive waste for permanent geologic disposal. ORIA also provided technical assistance to the RPM at the Teledyne Wah Chang site.

3.5 Guidance Documents

OERR, ORIA, and ORD published several guidance documents during FY92.

- *Guidance for Data Useability in Risk Assessment*

(Part A), April 1992: This manual provides practical guidance on the procedures for obtaining environmental analytical data that meet the minimum level of data quality required for Superfund risk assessments. Guidance is provided for both the design and evaluation of sampling and analytical activities for risk assessments within the remedial investigation.

- *Guidance for Data Useability in Risk Assessment (Part B), May 1992*: This document supplements Part A by providing information on determining the useability of analytical data for performing a baseline risk assessment at sites, including those with radionuclide contamination.
- *Supplemental Guidance to Risk Assessment Guidance for Superfund (RAGS): Calculating the Concentration Term, May 1992:* This guidance provides additional information on general intake equations presented in *RAGS Volume 1, Human Health Evaluation Manual, Part A*. The manual discusses basic concepts concerning the concentration term, describes how to calculate the concentration term, and identifies where to find assistance.
- *ECO Updates (intermittent):* This series of bulletins contains updates on ecological assessment of Superfund sites. The bulletins serve as a supplemental guidance to *RAGS, Volume 2, Environmental Evaluation Manual.*
- *Understanding Superfund Risk Assessment, July 1992*: This fact sheet explains the four steps of the risk assessment process in simple, nontechnical language. It briefly describes the differences between risk assessment and risk management and explains how the results of the baseline risk assessment are used in making decisions at Superfund sites.
- *Guidance for Performing Site Inspections Under CERCLA, September 1992*: This document provides guidance for site inspections conducted under CERCLA. The guidance discusses how to review and evaluate available information, how to plan an effective sampling strategy for collecting analytical data to evaluate a site using the HRS, and how to prepare required reports and work products.

Chapter 4
Emergency Response Accomplishments

Throughout the 11-year history of Superfund, the emergency response and removal program has successfully prevented and minimized threats to human health and the environment. Through FY92, EPA and potentially responsible parties (PRPs) have initiated more than 3,040 removal actions to address threats posed by the release or threatened release of hazardous substances.

This chapter discusses the removal action process, the progress achieved under the Superfund removal program in addressing immediate threats to human health and the environment, the contributions of the Environmental Response Team (ERT), and emergency response guidance and rulemaking development.

4.1 The Removal Action Process

Removal actions are taken in response to a release or threat of release of a hazardous substance that presents an immediate or near-term threat to human health, welfare, or the environment. Examples of situations that might warrant a removal action include chemical spills or fires at production or waste storage facilities, transportation accidents involving hazardous substances, and illegal disposal of hazardous waste (midnight dumping). Exhibit 4.1-1 presents examples of the kinds of threats that might be posed by these situations and the corresponding removal actions that might be taken. Managed by a federal On-Scene Coordinator (OSC), a removal action is generally short-term, addresses the most immediate threats, and complies with applicable or relevant and appropriate requirements (ARARs) to the extent practicable given the exigencies of the situation.

When notified of a release or threat of release that might require a removal action, the Agency conducts a removal site evaluation to determine the source and nature of the release, the threat to public health and the environment, and whether an appropriate response has been initiated. The Agency reviews the results of the removal site evaluation and other factors to determine the appropriate extent of a removal. At any point in this process, the Agency might refer the action to the site assessment program or determine that no further remedial action is necessary. When the Agency concludes that a removal action is required, the appropriate response is implemented to minimize or eliminate the threat.

The removal program categorizes removal actions based on the time available before a response action must be initiated. "Emergency" removal actions require response at the site within hours. "Time-critical" removal actions are conducted when the lead agency concludes that the action must begin within six months. For "non-time-critical" removal actions, the planning period may extend more than six months before the removal action is begun. During this planning period, the lead agency conducts an engineering evaluation/cost analysis for the response action.

Acronyms Referenced in Chapter 4

ARAR	Applicable or Relevant and Appropriate Requirement
ERRS	Emergency and Rapid Response Services
ERT	Environmental Response Team
MIC	Methyl Isocyanate
NPL	National Priorities List
OSC	On-Scene Coordinator
PRP	Potentially Responsible Party
RCRA	Resource Conservation and Recovery Act
RQ	Reportable Quantity
SACM	Superfund Accelerated Clean-Up Model

To document the selection of a response action for a removal, the Agency prepares an action memorandum that states the authority for initiating the action, describes the action to be taken, and explains the basis for selecting the response. EPA also establishes an administrative record, compiling the documents that formed the basis for the selection of the response action.

The following sections discuss other key aspects of the removal action process, including community participation, the role of the OSC, and CERCLA limitations on the scope of removal actions.

Community Participation in Removal Actions

The removal process provides many opportunities for public participation. The Agency appoints an official spokesperson to keep the public abreast of the progress of a given removal action. The administrative record may be made available at a repository near the site and at EPA offices. If the removal action is expected to continue beyond 120 days, the lead agency must involve local officials and other parties in the process.

The On-Scene Coordinator

The OSC organizes, directs, and documents the removal action. Duties include conducting field

Exhibit 4.1-1
Typical Removal Response Actions

Threat Posed	Typical Removal Action Taken
Humans or animals have access to released hazardous substances, fire, or explosion	Installing fences, warning signs, or other security and site control precautions
	Removal of waste materials posing the threat
	Temporarily relocating residents in extreme situations
Precipitation or run-off from other sources (e.g., flooding) may enter the release area	Constructing drainage controls, such as run-off or run-on diversions
Failure of a structure such as a lagoon is likely	Stabilizing berms, dikes, or impoundments
Migration of hazardous substances into soil, ground water, or air is likely	Containing hazardous substances, such as capping contaminated soil or sludge
	Treating hazardous substances, including incineration
	Excavating highly contaminated soil
	Removing drums, barrels, tanks, or other bulk containers containing hazardous substances
Drinking water supply is contaminated	Providing alternate water supplies

Source: Office of Emergency and Remedial Response/Emergency Response Division. 51-013-8C

investigations, on-scene monitoring, and overseeing the removal action. The OSC is also responsible for preparing a final report that describes the site conditions prior to the removal action, the removal action performed at the site, and any problems that occurred during the removal action.

Removal Action Statutory Limits

Removal actions are generally short-term, relatively inexpensive responses to releases or threats of releases that pose a danger to human health, welfare, or the environment. Accordingly, Congress included in CERCLA limitations for removal actions of $2 million and one year for the cost and duration, respectively. Congress established exceptions to these limits, however, under specific circumstances:

- Continued response is required immediately to prevent, limit, or mitigate an emergency; there is an immediate threat to public health, welfare, or the environment; and action cannot otherwise be provided on a timely basis; or
- Continued response action is otherwise appropriate and consistent with the remedial action to be taken.

During FY92, EPA authorized 29 exemptions (ceiling increases) for removal actions to exceed the $2 million limitation. In addition, EPA authorized 10 exemptions to continue removals for more than one year.

4.2 Progress in Addressing Immediate Threats

Cumulatively, since the inception of Superfund, the Agency and PRPs have begun more than 3,040 removal actions at NPL and non-NPL sites to address immediate threats to human health, welfare, or the environment posed by releases or potential releases of hazardous substances. Under the Superfund Accelerated Clean-Up Model (SACM), the Agency will expand its use of removal actions to expedite response, especially at NPL sites.

4.2.1 Status Report on Removal Actions

Of approximately 380 removal actions begun either by EPA or PRPs in FY92, PRPs financed nearly 100 and EPA financed more than 280. The removal actions started by PRPs included 30 at NPL sites and 70 at non-NPL sites. EPA started 30 removal actions at NPL sites and 250 at non-NPL sites. Exhibit 4.2-1 compares the number of removal actions started by EPA and PRPs in FY91 and FY92.

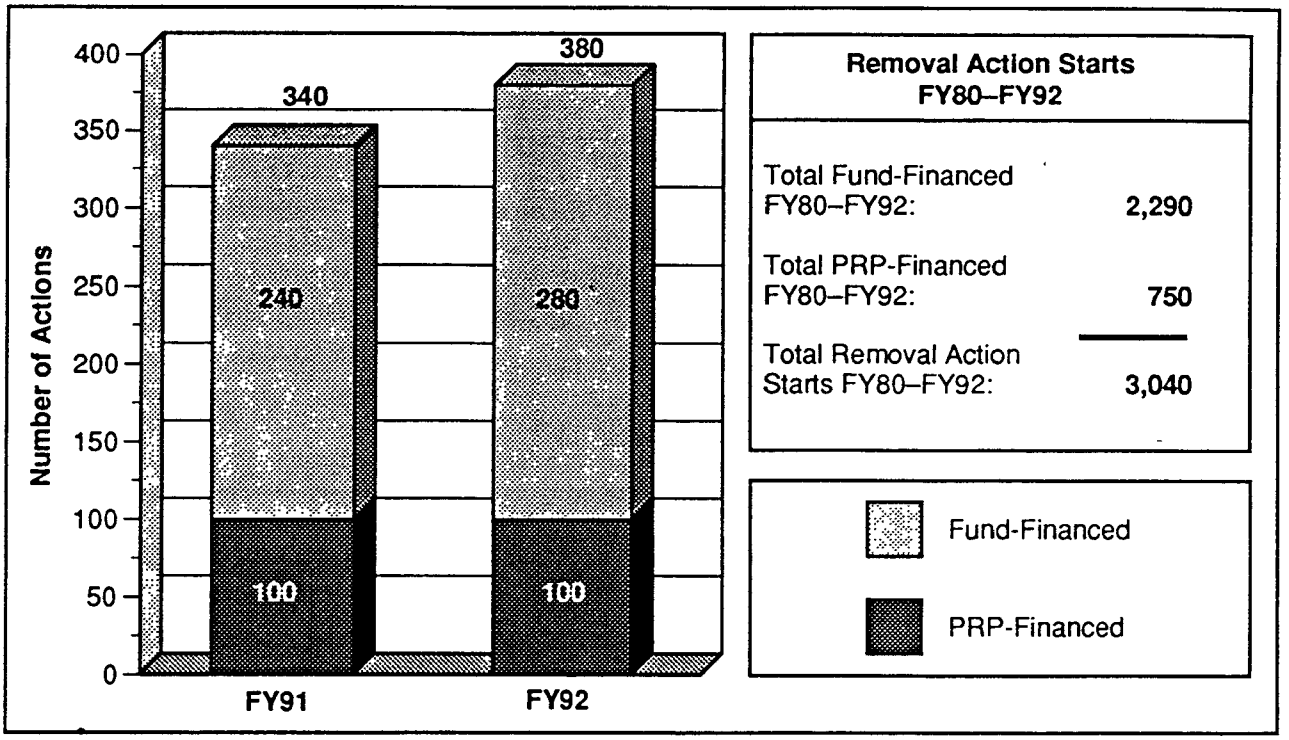
EPA and PRPs completed more than 340 removal actions during FY92. PRPs funded 70 of the 340 completed removal actions, including 20 at NPL sites and 50 at non-NPL sites. EPA funded 270 of the total, including 40 at NPL sites and 230 at non-NPL sites. Exhibit 4.2-2 compares the number of removal actions completed by EPA and PRPs in FY91 and FY92.

Removal actions that have started but have not reached completion are considered "ongoing." Ongoing removal actions include actions that have been in progress less than 12 months and removal actions that have continued for more than 12 months under exemptions from the statutory one-year duration limit. Sites where a removal action has taken place but the contaminants have not yet been transported to a disposal facility are also defined as sites with ongoing removal actions.

4.2.2 Expanding the Use of Removal Authority

Expanding the use of removal authority for "early actions" to reduce immediate risks more rapidly and expedite cleanups at NPL sites is a key element of SACM. As an incentive to pilot this approach during FY92, the Agency set aside $50 million in the remedial action budget to fund early actions. Early actions can be emergency, time-critical, or non-time-critical removal actions or rapid remedial responses.

Exhibit 4.2-1
Removal Action Starts



Source: CERCLIS; Office of Emergency and Remedial Response.

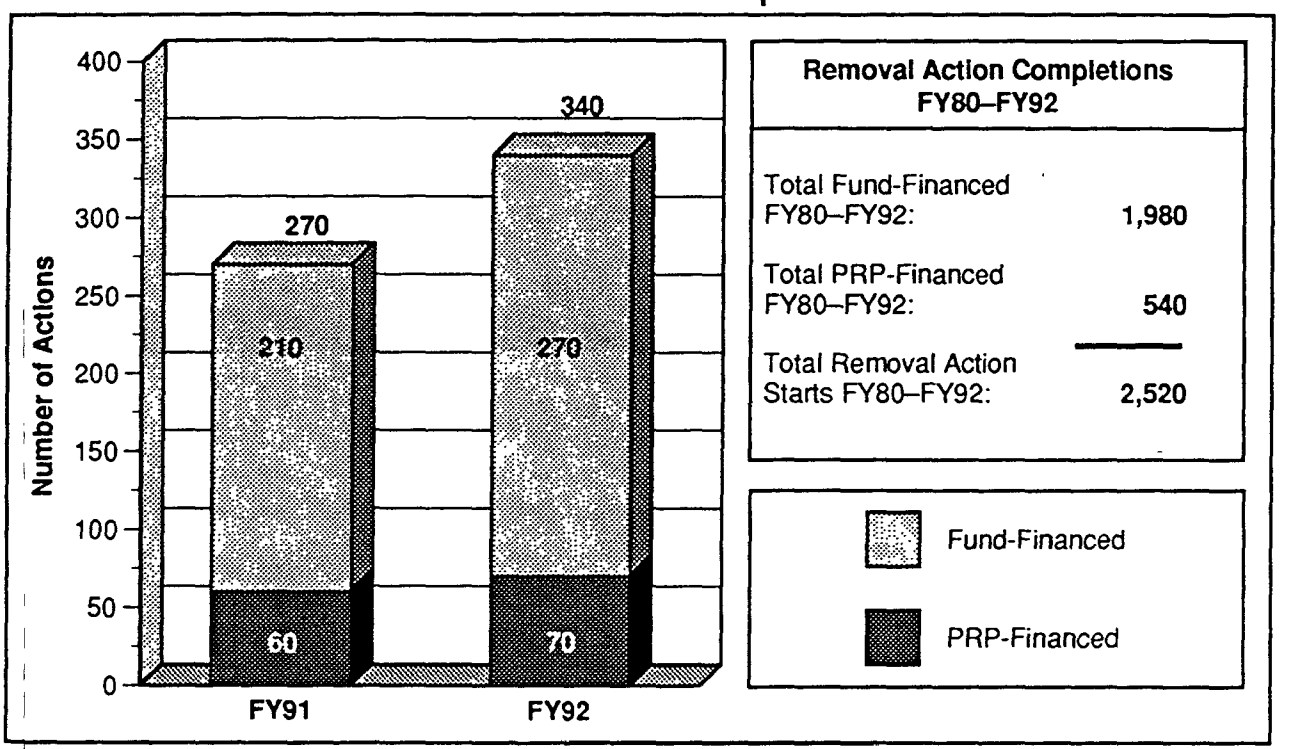
51-013-01J

Although the set-aside program was not announced until February 20, 1992, the Agency allocated more than $37 million of the set-aside money for early actions at 13 sites in 7 Regions, including 8 NPL sites. All of the clean-up actions funded were time-critical removals with the exception of one rapid remedial response in Region 1. The funding for early actions did not replace normally used Regional removal funds, but allowed Regions to initiate additional actions. The set-aside funding and the use of remedial funding directly under the Emergency and Rapid Response Services (ERRS) contracts significantly enhanced the Agency's ability to expedite overall response at the NPL sites. Additional information on SACM and the use of removal authority to conduct early actions is provided in Chapter 1.

Due to the success of the early action approach, the Agency will set aside an additional $50 million for early actions in FY93. To further facilitate early actions, EPA's Emergency Response Division will work with the Regional offices and the Office of Acquisition Management to eliminate obstacles posed by limited capacity and funding under ERRS.

An example of an early action at an NPL site is the SACM pilot at the National Zinc Site in Bartlesville, Oklahoma. On August 5, 1992, the Agency initiated phase one of a removal action at the site to excavate lead- and cadmium-contaminated soil. The phase one removal action, which is expected to take 12 months and cost approximately $2.5 million, will address 29 high access public areas including schools, day care centers, parks, playgrounds, and recreation areas in the vicinity of several historic smelter operations. The action will also address residences where testing indicates that children had high levels of lead in their blood, or where lead or cadmium levels detected in soil exceeded action levels. During the removal action, contaminated soil with lead levels greater than 500

Exhibit 4.2-2
Removal Action Completions



Source: *CERCLIS; Office of Emergency and Remedial Response. 51-013-38G

parts per million (ppm) and cadmium levels greater than 30 ppm will be excavated and disposed of at an approved hazardous waste facility. The excavated areas will be backfilled with clean soil. This action will be consistent with the overall remediation of the site and will address near-term threats to public health, welfare, or the environment.

4.3 Environmental Response Team

As part of the removal program required by the National Oil and Hazardous Substances Pollution Contingency Plan, EPA manages ERT. Over its 11 years of service, this team of EPA experts has been available to OSCs and Remedial Project Managers to support removal and remedial actions 24 hours a day, 365 days a year. In addition to its response support, ERT provides introductory- and intermediate-level training courses in health and safety and other technical aspects of response. ERT provides expertise in emergency response, hazard assessment, health and safety, air monitoring, alternative and innovative technology, site investigation, ecological damage assessment, clean-up contractor management, and oil and chemical spill control.

During FY92, ERT responded to 102 removal actions, 61 remedial actions, 5 oil spills, and 2 international incidents. ERT also offered 227 training courses nationwide.

4.4 Emergency Response Guidance and Rulemaking

During FY92, the Agency continued updating the *Superfund Removal Procedures Manual.* Under the reportable quantity (RQ) regulatory program, the

Agency proposed adjustments to RQs, completed the report of the EPA Hazardous Substances Task Force, and issued a directive regarding release of ethlene glycol in airplane de-icing operations.

4.4.1 Superfund Removal Procedures Manual

The *Superfund Removal Procedures Manual* covers all procedural and administrative requirements for removal actions. The manual is used by OSCs, other removal personnel, remedial program staff, enforcement personnel, and staff from other federal and state agencies. In FY90, EPA began restructuring the manual into a series of 10 stand-alone volumes, each addressing distinct aspects of Superfund removal actions. In FY92, EPA completed the third and fourth volumes of the series: *Removal Enforcement Guidance for On-Scene Coordinators* and *Public Participation Guidance for On-Scene Coordinators: Community Relations and the Administrative Record.* The remaining six volumes of the manual were under development as of the end of FY92.

4.4.2 Reportable Quantity Regulatory Program

Section 102(b) of CERCLA, as amended, sets an RQ of one pound for hazardous substances, except those substances for which different RQs have been established pursuant to Section 311(b)(4) of the Clean Water Act. Section 102(a) of CERCLA authorizes EPA to adjust RQs for hazardous substances and to designate additional CERCLA hazardous substances.

Under CERCLA Section 103(a), the person in charge of a vessel or facility must immediately notify the National Response Center upon learning of a release of a hazardous substance in a quantity that is equal to or exceeds its RQ. In addition to these reporting requirements, Section 304 of the Emergency Planning and Community Right-to-Know Act of 1986 requires that a release of a hazardous substance in quantities equal to or exceeding its RQ (or one pound if a reporting trigger is not established by regulation) be reported to state and local authorities.

Reportable Quantity Adjustments

EPA proposed RQ adjustments for 31 hazardous substances in a May 8, 1992, rule (57 *FR* 20014). These 31 substances include the following chemicals:

- Lead metal;
- Thirteen lead compounds;
- Fifteen lead-containing hazardous wastes listed under the Resource Conservation and Recovery Act (RCRA);
- RCRA characteristic wastes that fail the Toxicity Characteristic Leaching Procedure ("TC wastes") based on their lead constituents; and
- Methyl isocyanate (MIC).

The RQ adjustments for lead and lead compounds are based on the neurotoxic effects of lead in children. The potential adverse reproductive and respiratory effects of MIC resulted in the RQ adjustment for MIC. Also during the fiscal year, EPA began preparing responses to public comments received on the proposed RQ adjustments.

The Hazardous Substance Task Force Report

In April 1992, EPA completed the report of the EPA Hazardous Substances Task Force. Following the release of 19,500 gallons of the herbicide metam sodium into the Sacramento River on July 14, 1991, Congress requested that EPA identify and address gaps in the regulation of hazardous chemicals like metam sodium. The task force was charged with

- Examining the issues associated with expansion of the CERCLA hazardous substance list;
- Suggesting additional criteria to identify environmentally hazardous materials to be regulated in transportation; and
- Identifying innovative approaches beyond EPA's traditional regulatory framework that would enhance the protection of human health and the environment.

Other Efforts

The Agency issued a directive (Office of Solid Waste and Emergency Response Directive 9360.4-12) on February 4, 1992, concerning releases of ethylene glycol from airplane de-icing operations. Ethylene glycol is a CERCLA hazardous substance by virtue of its listing as a hazardous air pollutant under the Clean Air Act Amendments of 1990. The Agency issued the directive in response to airline industry concerns about CERCLA reporting requirements for releases during de-icing that exceed the RQ for ethylene glycol. The directive stated EPA's position on the applicability of the federally permitted release exemption and the continuous release reporting regulation.

Chapter 5
Remedial Accomplishments

Remedial progress during FY92 illustrated EPA's commitment to accelerate the pace of Superfund cleanup. Compared to FY91, there were an increased number of remedial activities started resulting in an increased number of remedial activities in progress at the end of the year. In addition, the Agency completed clean-up activities to place a record number of 88 National Priorities List (NPL) sites in the construction completion category, more than doubling the number of sites so categorized in the 10 previous years of the Superfund program.

This chapter highlights progress in remediating NPL sites and provides information on

- The remedial process;
- Fiscal year accomplishments;
- Remedies selected during the year;
- Fiscal year remedial initiatives;
- Efforts to develop and use innovative treatment technologies, including an evaluation of newly developed and achievable permanent treatment technologies, as required by CERCLA Section 301(h)(1)(D); and
- Results of completed five-year reviews, required by CERCLA Section 121(c) and 301(h)(1)(E), for sites where contamination remained on site after remedial action was completed.

5.1 Remedial Progress

By the end of FY92, work had occurred at nearly 96 percent of the 1,275 NPL sites. Exhibit 5.1-1 illustrates the status of the work at NPL sites, by the most advanced stage activity at each site. The remedial process used for cleaning up NPL sites and highlights of the progress made at the sites during FY92 are described below.

5.1.1 The Remedial Process

The "remedial process" refers to the cleanup of our nation's highest-priority hazardous waste sites—those placed on the NPL. It is the second of a two-phase process. The first phase is the site evaluation phase, which consists of the discovery or identification of a potential site, the preliminary assessment of the site, and the site inspection (SI). During the SI, the site is evaluated for possible listing on the NPL. If a site is listed on the NPL after the SI, it is eligible for Trust Fund financing of clean-up activities under the remedial authorities of CERCLA. Remedial activities include the following key components:

- The remedial investigation/feasibility study (RI/FS), determining the type and extent of contamination, and evaluating and developing remedial clean-up alternatives;
- The record of decision (ROD), identifying the remedy selected, based on the results of the RI/FS and public comment on the clean-up alternatives;
- The remedial design (RD), developing plans and specifications needed for the construction of the selected remedy;
- The remedial action (RA), implementing the selected remedy, including the construction of

Acronyms Referenced in Chapter 5

ARAR	Applicable or Relevant and Appropriate Requirement
ATTIC	Alternative Treatment Technology Information Clearinghouse
CA	Cooperative Agreement
CERCLIS	CERCLA Information System
CLU-IN	Clean-Up Information
DNAPL	Dense Nonaqueous Phase Liquid
MMTP	Monitoring and Measurement Technologies Program
NAPL	Nonaqueous Phase Liquid
NPL	National Priorities List
O&M	Operation and Maintenance
OER	Office of Exploratory Research
OERR	Office of Emergency and Remedial Response
ORD	Office of Research and Development
OSWER	Office of Solid Waste and Emergency Response
PRP	Potentially Responsible Party
RA	Remedial Action
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RFA	Request for Application
RI/FS	Remedial Investigation/ Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager
RREL	Risk Reduction Engineering Laboratory
SI	Site Inspection
SITE	Superfund Innovative Technology Evaluation
TIO	Technology Innovation Office
UV	Ultraviolet
VISITT	Vender Information System for Innovative Treatment Technologies

the remedy and the completion of the construction; and

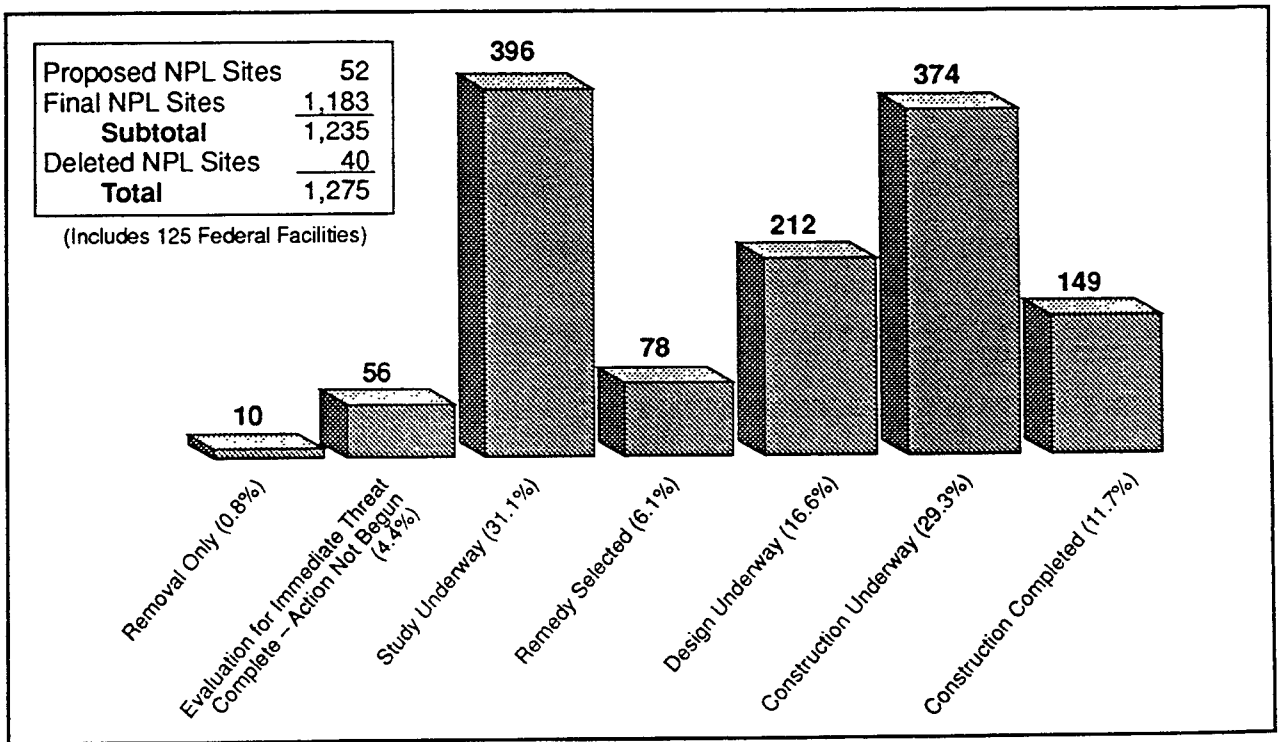
- Operation and maintenance (O&M), assuring the effectiveness or integrity of the remedy for long-term response actions.

A Remedial Project Manager (RPM) oversees all remedial and related enforcement activities. Regional Coordinators at EPA Headquarters assist RPMs by reviewing program activities and answering technical or policy questions. To ensure that remediation is protective of human health and the environment, the RPM must be certain that the RA will attain all applicable or relevant and appropriate requirements (ARARs). ARARs are those substantive requirements of federal law and comparatively more stringent state environmental laws that legally apply to hazardous waste site cleanups.

Exhibit 5.1-1
Work Has Occurred at Most National Priorities List Sites

Proposed NPL Sites	52
Final NPL Sites	1,183
Subtotal	1,235
Deleted NPL Sites	40
Total	1,275

(Includes 125 Federal Facilities)



Source: CERCLIS; Office of Emergency and Remedial Response.

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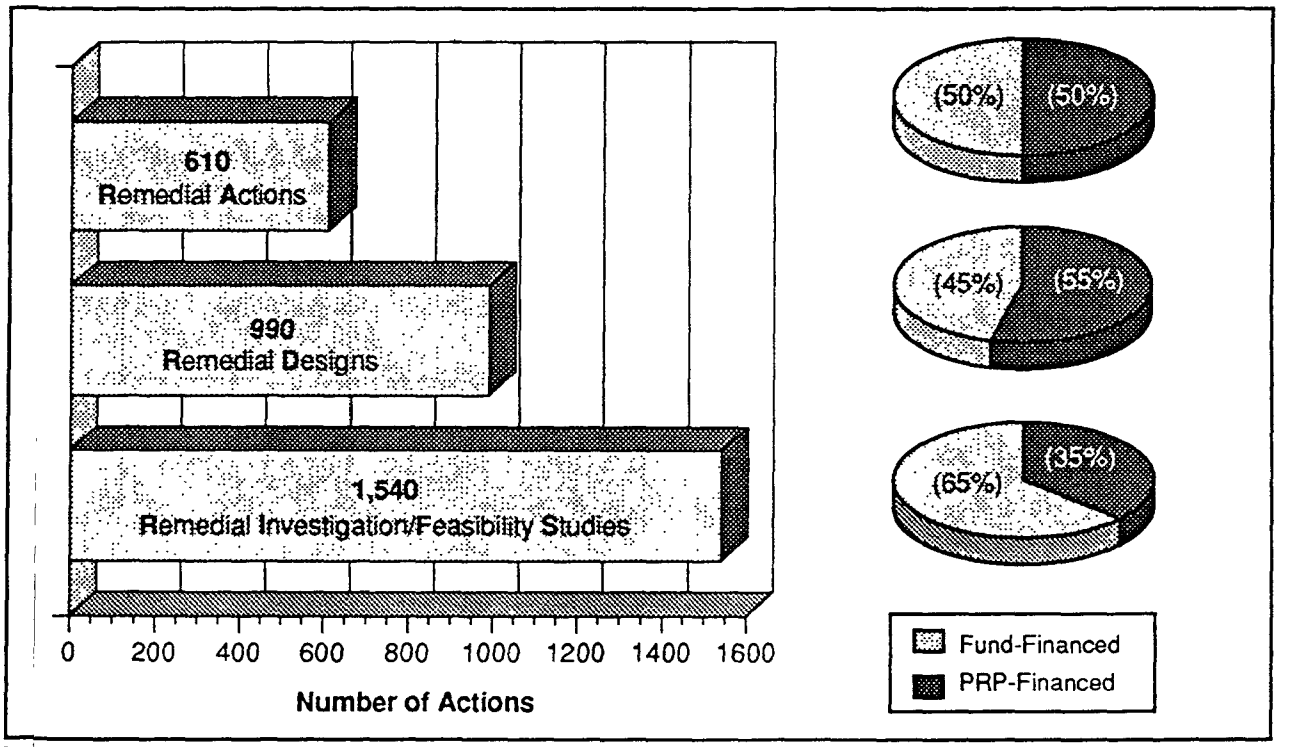
5.1.2 Fiscal Year Accomplishments

As shown in Exhibit 5.1-2, the Agency and potentially responsible parties (PRPs) had undertaken approximately 1,540 RI/FSs, 990 RDs, and 610 RAs in the Superfund program by the close of the fiscal year. The remedial accomplishments during FY92 reflect the Agency's continued efforts to accelerate the pace of cleanup, place sites in the construction completion category, and encourage PRP participation in cleanup.

- *RI/FS Starts:* During FY92, PRPs and the Agency financed the start of 90 RI/FSs; PRPs and the Agency each financed 50 percent. The number of RI/FSs started in FY92 represents a nearly 30 percent increase over the more than 70 RI/FSs started in FY91. Exhibit 5.1-3 illustrates this comparison of RI/FS accomplishments.
- *RD Starts:* As shown in Exhibit 5.1-4, the Agency or PRPs started 170 RDs in FY92; PRPs financed approximately 70 percent and the Agency financed 30 percent. The number of RDs started in FY92 represents a more than 5 percent increase over the 160 RDs started in FY91.
- *RA Starts:* PRPs and the Agency financed the start of 110 RAs during FY92; PRPs financed more than 70 percent, and the Agency financed 30 percent. The 110 RAs started in FY92 represent an almost 10 percent increase over the 100 RAs started in FY91. Exhibit 5.1-5 illustrates this comparison of RA accomplishments.
- *Construction Completions:* The Agency placed a record 88 NPL sites in the construction completion category during FY92, bringing the Superfund program total to 149. The significant

Exhibit 5.1-2
Remedial Accomplishments under the Superfund Program for Fiscal Year 1980 Through Fiscal Year 1992



Source: CERCLIS; Office of Emergency and Remedial Response.

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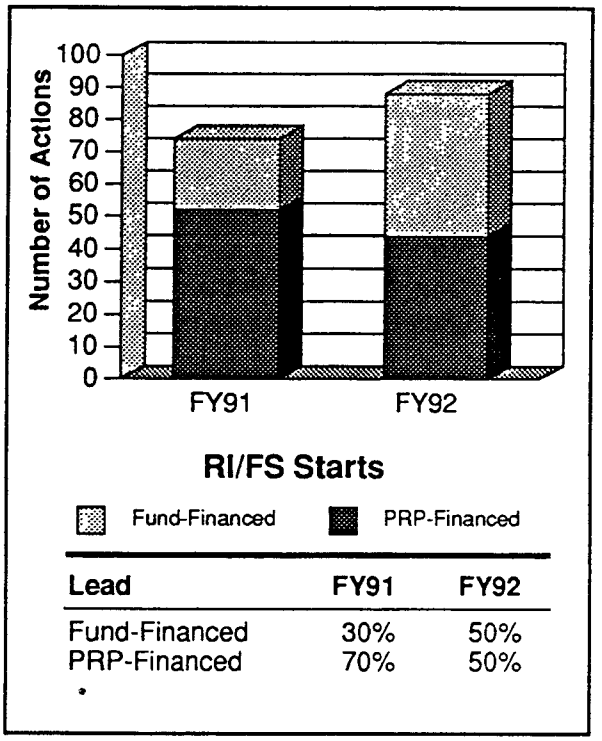
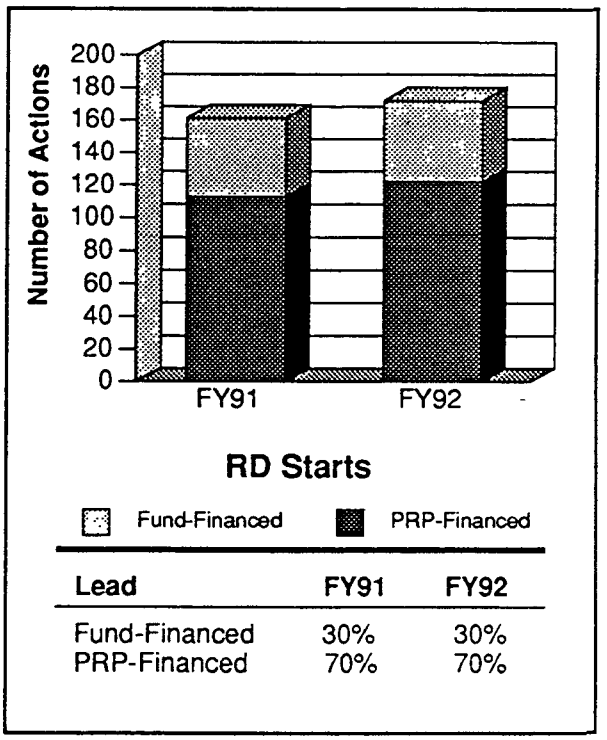
Exhibit 5.1-3
Comparison of Remedial Investigation/Feasibility Study Starts



Lead	FY91	FY92
Fund-Financed	30%	50%
PRP-Financed	70%	50%

Source: CERCLIS; Office of Emergency and Remedial Response. 51-013-31G

Exhibit 5.1-4
Comparison of Remedial Design Starts



Lead	FY91	FY92
Fund-Financed	30%	30%
PRP-Financed	70%	70%

Source: CERCLIS; Office of Emergency and Remedial Response. 51-013-32H

rise in completions during FY92 reflects the increasing emphasis on completing construction at sites and the streamlining of documentation requirements.

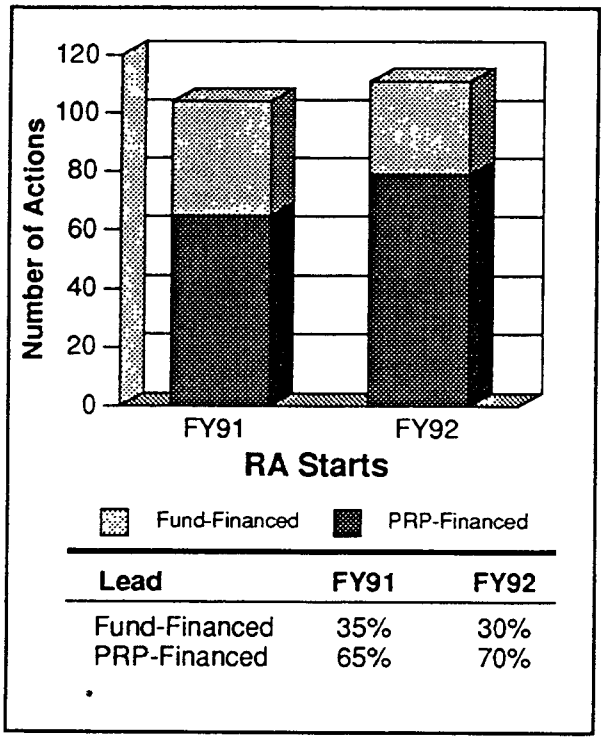
- *PRP Involvement:* PRPs' financing of more than 70 percent of the RDs and RAs started in FY92 exhibits the Agency's successful efforts to compel PRPs to participate in clean-up activities. Additional information on PRP involvement in Superfund cleanup is provided in Chapter 6.

In addition to these Fund-financed and PRP-financed activities, other federal agencies or departments, states, and Indian tribes financed or assumed the lead for response activities. These accomplishments are discussed in Chapters 7 and 8.

5.1.3 Status of Remedial and Enforcement Activities in Progress

At the end of FY92, 1,274 RI/FS and RA projects were in progress at 751 NPL sites, compared with 1,196 RI/FSs and RAs at 750 NPL sites at the end of FY91. FY92 projects included 920 RI/FSs and 354 RAs. As required by CERCLA Sections 301(h)(1)(B), (C), and (F), a listing of projects in progress at the end of FY92 is provided in Appendix A, along with their projected completion schedule. There were also 412 RDs in progress at the end of FY92, compared with 374 RDs in progress at the end of FY91. A listing of all RDs in progress at the end of FY92 is provided in Appendix B.

Exhibit 5.1-5
Comparison of Remedial Action Starts



Lead	FY91	FY92
Fund-Financed	35%	30%
PRP-Financed	65%	70%

Source: CERCLIS; Office of Emergency and Remedial Response.

51-013-30K

Of the 1,274 RI/FS and RA projects in progress at the end of the FY92, 208 were on schedule. In addition, 45 projects were ahead of schedule and 322 projects were started during the fiscal year. Projects behind schedule totaled 596, and 103 projects had no previously published estimated date of completion. Exhibit 5.1-6 identifies the number of projects in progress at the end of FY91 and FY92 at NPL sites by lead.

PRPs were conducting 481 of the RI/FS and RA projects in progress at the end of FY92, including 310 RI/FSs and 171 RAs. Of these 481 PRP-financed projects, 74 were on schedule. In addition, 11 projects were ahead of schedule and 121 projects were started during the fiscal year. Projects behind schedule totaled 238, and 37 projects had no previously published estimated date of completion.

The status of RI/FSs and RAs in progress is based on a comparison of each project's planned completion date in the CERCLA Information System (CERCLIS) at the end of FY91 with the planned completion date in CERCLIS at the end of FY92. An initial completion schedule is included when a remedial activity is entered into CERCLIS. Minimal site-specific information is available when the initial completion schedule is determined, and Regions usually rely on standard planning assumptions (e.g., 12 quarters for an RI/FS). As work continues, schedules are adjusted to reflect actual site conditions.

5.2 Remedy Selection

The Agency signed 172 RODs in FY92, including 126 new and amended RODs for Fund-financed and PRP- financed sites and 46 RODs for federal facility sites.

The ROD documents the results of all studies performed on the site, lists the remedies selected to clean up the site, and identifies each remedial alternative that the Agency considered. The ROD is signed after completion of the RI/FS, and after the public has had the chance to comment on the remedial alternatives under consideration. The Agency selected a variety of remedies in fiscal year RODs, based on a careful analysis of characteristics unique to each site and the proximity of each site to people and sensitive environments. (Wetlands and endangered wildlife are examples of environmental resources that are taken into consideration when evaluating remedies.)

Congress, with the enactment of SARA, sent EPA a clear message to give preference to treatment rather than containment remedies. Exhibit 5.2-1 lists the number and types of source control treatment and containment remedies selected in FY92 RODs. It also identifies the number of remedies selected for addressing contaminated ground water. Exhibit 5.2-2 represents the 172 FY92 RODs by percentage comparison based on the type of remedies selected.

The list of the 172 RODs signed during FY92 is provided in Appendix C. To fulfill the requirement of CERCLA Section 301(h)(1)(A) to provide an abstract of each feasibility study (e.g., ROD), a summary of each FY92 ROD is available in the publication *ROD Annual Report FY 1992*.

Exhibit 5.1-6
Projects in Progress at National Priorities List Sites by Lead for Fiscal Year 1991 and Fiscal Year 1992

	RI/FS		RDs		RAs	
	FY91	FY92	FY91	FY92	FY91	FY92
Fund-Financed—State-Lead	42	37	22	22	29	29
Fund-Financed—Federal-Lead[1]	181	153	121	104	103	105
Fund-Financed—EPA Performs Work at Site[2]	19	15	3	4	2	2
PRP-Financed and PRP-Lead	253	259	186	233	133	151
Mixed Funding—Monies from Fund and PRPs	0	2	5	3	6	7
PRP-Financed—State Order and EPA Oversight[3]	65	51	15	15	14	20
State Enforcement	0	3	0	0	0	0
Federal Facility	329	400	22	31	20	40
Total	**889**	**920**	**374**	**412**	**307**	**354**

[1] Includes remedial program-lead projects and enforcement program-lead projects.
[2] Projects at which EPA employees, rather than contractors, perform the site clean-up work.
[3] Projects where site clean-up work is financed and performed by the PRPs under state order, with EPA oversight.

Sources: *Progress Toward Implementing Superfund:* FY91 (Appendices A and B) and FY92 (Appendices A and B). 51-013-18D

5.3 Remedial Initiatives

Continuing efforts initiated under the 30-Day Study to streamline remedial activities, the Agency worked to develop presumptive remedies, standard soil trigger levels, and guidance defining "construction completion" site status. The Agency also issued a final directive on ground-water remediation.

30-Day Study Initiatives

The 30-Day Study Task Force recommended several measures to improve remedial activities.

- *Presumptive Remedy Selection:* Presumptive remedies will streamline the remedy selection process by identifying standard remedies for specific types of sites. The Agency began to work to develop guidance on presumptive remedies during FY92. The public, state, or PRPs may also propose use of other approaches based on site-specific technical information or on local or state concerns.
- *Standardized Soil Trigger Levels:* The 30-Day Study Task Force found that the existing procedure for establishing different soil clean-up levels for each site was complex and time-consuming. To expedite the process, the Agency began developing methods for determining standard soil trigger levels, which may serve as clean-up levels under certain circumstances. During FY92, the Agency began work on soil trigger levels for the top 30 priority chemicals found at Superfund sites.
- *Construction Completion Policy:* On February 19, 1992, EPA announced new procedures for defining the construction completion category for NPL sites (Office of Solid Waste and Emergency Response (OSWER) Directive 9320.2-3C). "Construction completion" is a single

Exhibit 5.2-1
Summary of Remedies Selected in Fiscal Year 1992 Records of Decision[1]

Source Control Remediation	Total Number of Occurrences
Treatment Technology[2]	
Thermal Destruction/Incineration	10
Immobilization	37
In situ Vacuum/Vapor Extraction	20
Soil Washing	4
Thermal Desorption	4
Bioremediation[3]	13
To Be Determined/Unspecified Treatment	13
In situ Vitrification	0
Dechlorination	0
Soil Flushing	4
Volatilization/Aeration	0
Solvent Extraction	1
Chemical Treatment	1
TOTAL	**107**
Other Treatment	
Decontamination	18
Recovery/Recycling	9
Surface Water Treatment	20
NAPLs Treatment	8
Gas Flaring	4
TOTAL	**59**
Containment Only	
On-site	21
Off-site	8
TOTAL	**29**
Other Actions (e.g., Institutional Controls, Relocation)	7
Contaminated Ground-Water Remediation	**Total Number of Occurrences**
Active Restoration	
Physical/Chemical	139
Biological	10
To Be Determined/Unspecified Treatment	18
Publicly Owned Treatment Works	12
TOTAL	**179**
Alternate Water Supply	7
Natural Attenuation	12
Leachate Treatment	10
Containment[4]	8
Other Actions (Institutional Controls)	5
No Further Action	25

[1] Based on 172 FY92 RODs, including 46 federal facility RODs and 8 ROD amendments. Includes 85 final and 34 interim action RODs, and 25 no action RODs; more than one remedy may be associated with a ROD.

[2] Includes primary and contingent treatment technologies. Data reflects occurrences of technologies as selected in the 119 RODs that addressed source control; more than one technology may be associated with a ROD.

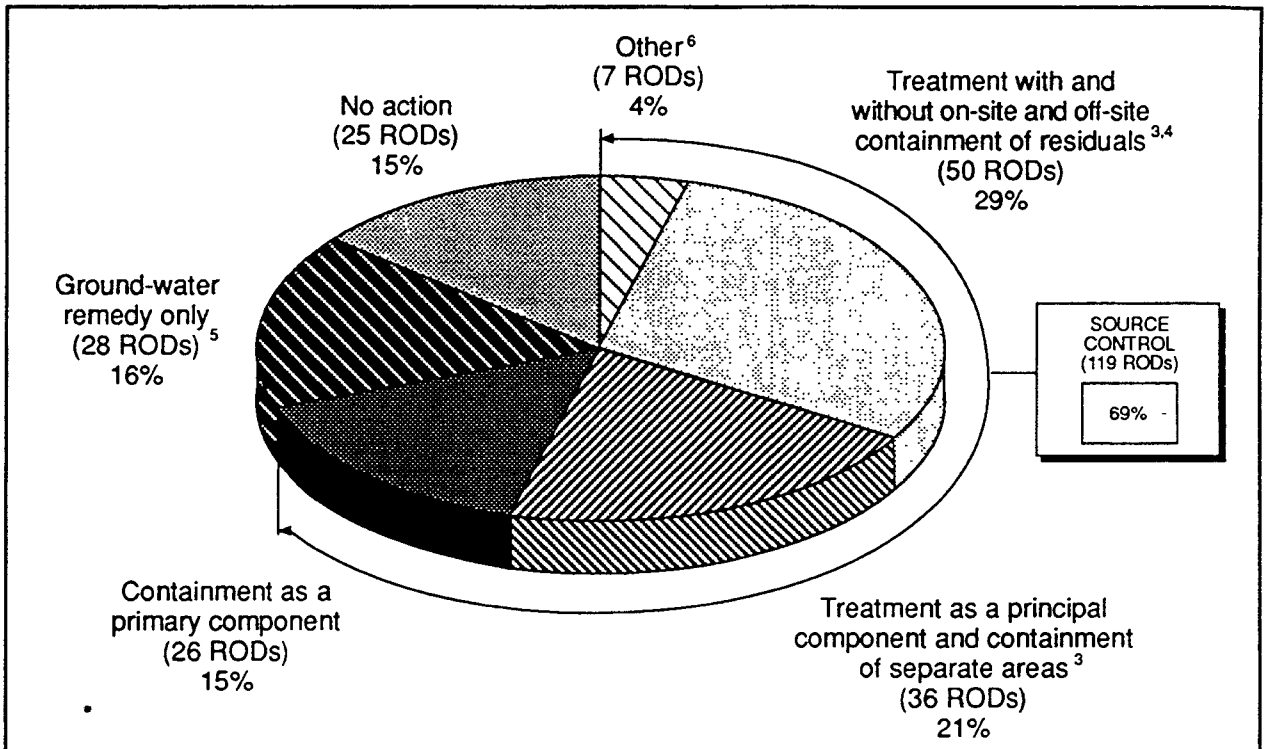
[3] Includes *in situ* and *ex situ* processes.

[4] Includes management of migration.

Source: Office of Emergency and Remedial Response/Hazardous Site Control Division.

51-013-41E

Exhibit 5.2-2
Percentage Distribution of Remedies Selected In Fiscal Year 1992 Records of Decision[1,2]



[1] Based on 172 FY92 RODs, including 46 federal facility RODs and 8 ROD amendments.
[2] Many sites require more than one type of action to mitigate threats identified.
[3] Includes treatment trains for source.
[4] Many treatments yield a residual that may require further management.
[5] Includes containment, institutional controls, restoration, and alternate water supply remedies.
[6] Includes institutional controls, monitoring, or relocation remedies.

Source: Office of Emergency and Remedial Response/Hazardous Site Control Division. 51-013-42J

category in which all completed sites can be listed. Sites may be placed into the construction completion category when all necessary physical construction of the remedy is complete, whether or not final clean-up levels have been achieved; EPA has determined that the response action should be limited to measures that do not involve construction; or the site qualifies for deletion or has been deleted from the NPL.

Additional information on these initiatives is provided in Chapter 1.

Final Directive on Ground-Water Remediation

In May 1992, OSWER issued an updated ground-water remediation policy directive entitled, *Considerations in Ground-Water Remediation at Superfund Sites and RCRA Facilities—Update.* The final directive builds on previous policies and uses lessons learned from Superfund clean-up efforts to address special ground-water clean-up problems posed by nonaqueous phase liquid (NAPL) contaminants—organic compounds that do not readily mix with water. NAPLs, particularly dense NAPLs (DNAPLs), pose special problems because

they can be long-term sources of ground-water contamination. DNAPLs are difficult to locate and remediate in the subsurface.

The policy promotes a consistent remedial approach at both Superfund sites and Resource Conservation and Recovery Act (RCRA) corrective action facilities. The policy provides recommendations concerning site characterization approaches, appropriate early actions, and remedial approaches.

5.4 Use and Development of Treatment Technologies

CERCLA requires that EPA give preference to treatment remedies that reduce the toxicity, mobility, and volume of waste at a site. To ensure that a broad range of treatment technologies is available for use at Superfund sites, the Agency works to expand the pool of proven, cost-effective, and technically sound innovative treatment technologies and increase the availability of, and access to, information about them.

The Office of Research and Development (ORD) contributes to the development of treatment technologies through its Superfund Innovative Technology Evaluation (SITE) program. As part of this program, ORD invites technology developers to demonstrate new, innovative technologies on waste from NPL sites. ORD also awards research grants and contracts through its Office of Exploratory Research (OER).

To promote the application of clean-up technologies, EPA emphasizes the role of the Technology Innovation Office (TIO) in encouraging innovation. TIO uses booklets, journals, databases, and conferences to alert project managers, engineers, academics, contractors, and other interested parties to the availability of new technologies. ORD also supports information transfer activities, including seminars, bulletins, and computer systems, and supplies technical assistance to the federal, state, and public sectors in evaluating potentially applicable treatments.

5.4.1 The Superfund Innovative Technology Evaluation Program

In 1986, to help satisfy the CERCLA requirement for preference of treatment remedies, EPA's OSWER and ORD established the SITE program. ORD's Risk Reduction Engineering Laboratory (RREL), headquartered in Cincinnati, Ohio, administers the SITE program. The goal of the program is the development, demonstration, and subsequent application of new treatment technologies.

The SITE program, in its seventh year as of FY92, has been an integral part of EPA's research into alternative clean-up methods for hazardous waste sites. Under the program, EPA awards cooperative agreements (CAs) to technology developers. These developers then refine their innovative technologies during bench- or pilot-scale tests and may demonstrate them, with support from EPA, at hazardous waste sites. EPA collects and publishes engineering, performance, and cost data on the technologies tested through the program to aid in future decision making for hazardous waste site remediation.

The successful implementation of innovative technologies requires a team approach. SITE program staff members work closely with EPA's Regional offices, states, technology developers, the Superfund Technology Assistance Response Team, and OSWER to provide technology demonstrations and to disseminate information. The SITE program also uses EPA research facilities, such as the Test and Evaluation Facility and the Center Hill Facility in Cincinnati, Ohio, to evaluate innovative technologies.

Operational Areas

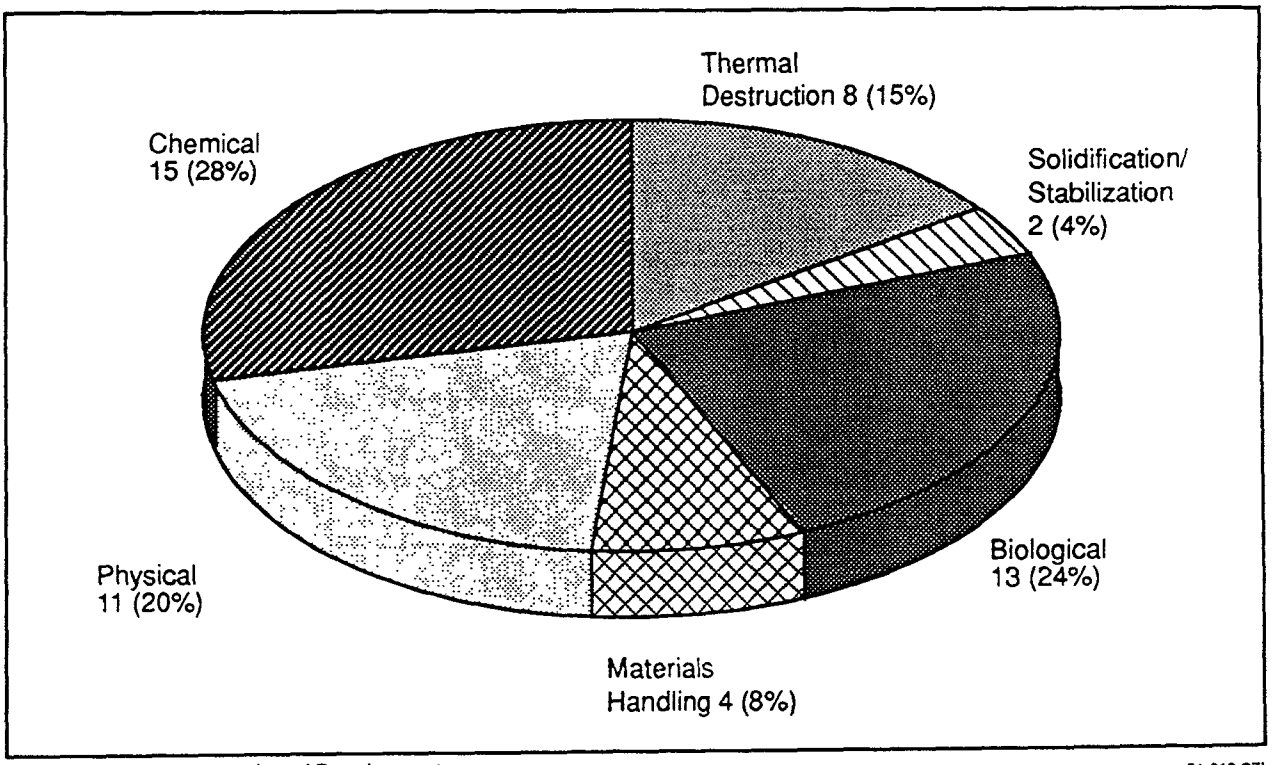
The SITE program is divided into four operational areas: emerging technologies, demonstrations, monitoring/measurement, and technology transfer.

Emerging Technologies Program: EPA provides technical and financial support to developers for bench- and pilot-scale testing and evaluating of innovative technologies that have been, at a minimum, proven on the conceptual or bench-scale level. The intent is that, following this initial testing, technologies will advance to the more rigorous testing of the

Demonstration Program. The Emerging Technologies Program compares the applicability of particular technologies to Superfund site waste characteristics. Each technology's performance is documented in a final report, project summary, and bulletin. In response to the FY91 solicitation, nine new technologies were accepted in the Emerging Technologies Program in FY92, bringing the total number to 53. Exhibit 5.4-1 provides a percentage breakdown, by treatment technique, of the technologies tested in the Emerging Technologies Program through FY92.

Demonstration Program: Promising innovative technologies are field-tested on hazardous waste materials. Engineering and cost data are gathered on the technologies so that potential users can assess their applicability to a particular site cleanup. Data collected during the field demonstration are used to assess the performance of the technologies, the potential need for pre- or post-processing of the waste, applicable types of wastes and waste matrices, potential operating problems, and approximate capital and operating costs. During FY92, 19 new technologies were accepted into the Demonstration Program, including 8 from the annual request for proposal, 4 from the Emerging Technologies Program, 1 developed by EPA, 2 from nominations by EPA Regional offices and other federal agencies, and 4 from other sources. As of December 1992, the program included 94 technology projects, 15 of which were demonstrated in FY92. Exhibit 5.4-2 provides a percentage breakdown by treatment technique of technologies in the Demonstration Program as of FY92.

Exhibit 5.4-1
Innovative Technologies in the Emerging Technology Program



Source: Office of Research and Development.

51-013-271

Monitoring and Measurement Technologies Program (MMTP): The goal of this program is to assess innovative and alternative monitoring, measurement, and site characterization technologies. During FY92, 14 technologies were demonstrated, each evaluating one or more monitoring and measurement techniques.

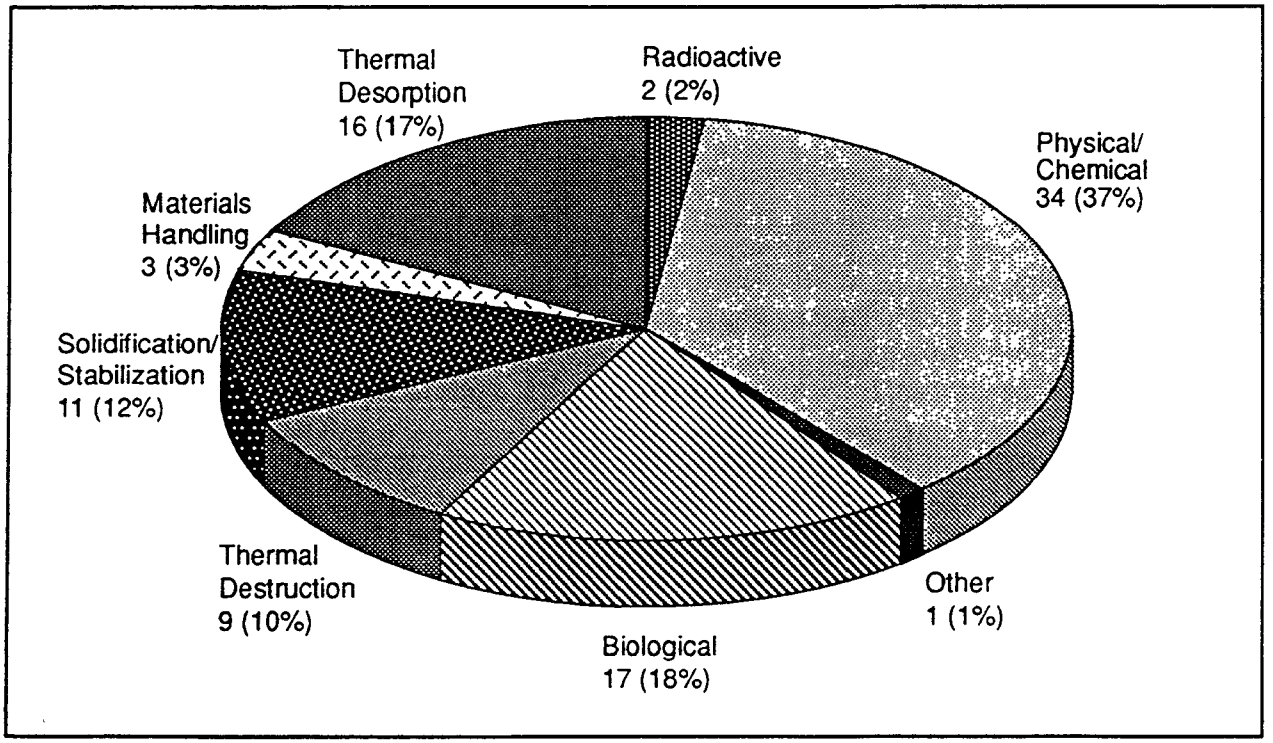
Technology Transfer Program: Technical information on innovative technologies in the Emerging Technologies Program, Demonstration Program, and MMTP is disseminated through various activities. The Agency provides this information to increase the awareness and promote the use of innovative technologies for assessment and remediation at Superfund sites, and to encourage communication among individuals who require up-to-date technical information.

Fiscal Year 1992 Demonstrations of Innovative Treatment Technologies

To evaluate new treatment technologies, 14 developers completed 15 field demonstrations during FY92, bringing the total number of demonstrations that have been completed under the SITE Demonstration Program to 44. The demonstrations completed in FY92 are summarized below.

Accutech Remedial Systems, Inc., has developed an integrated treatment system incorporating pneumatic fracturing extraction (PFE) and hot gas injection (HGI). The system provides a cost-effective accelerated remedial approach to sites with DNAPL-contaminated ground-water aquifers. The patented PFE process, which has been demonstrated at several sites, increases and equalizes subsurface airflow

Exhibit 5.4-2
Innovative Technologies in the Demonstration Program



Source: Office of Research and Development.

51-013-28

within low permeability formations, such as clay and fractured rock, to enhance contaminant mass removal. This technology was accepted into the SITE Demonstration Program in December 1990 and was demonstrated during July and August 1992 at a New Jersey Environmental Clean-Up Responsibility Act site in South Plainfield, New Jersey.

Babcock and Wilcox Co.'s cyclone vitrification technology is designed for the combustion of highly contaminated hazardous wastes, such as sludge and soil containing heavy metals and organic constituents. The waste may be in solid, soil sludge, or liquid form. The technology captures heavy metals in the slag and renders them nonleachable. An important application of the process is treatment of soil that contains low-volatility radionuclides. The technology was accepted into the SITE demonstration program in August 1991, and the demonstration was completed in Alliance, Ohio, in November, 1991.

Bergmann USA's soil and sediment washing technology separates contaminated particles by density and grain size. The technology operates on the hypothesis that most contamination is concentrated in fine particles and that contamination of larger particles is generally not extensive. In this technology, contaminated soil is screened to remove coarse rock and debris. Water and chemicals are added to the soil to produce a slurry feed, which flows to an attrition scrubbing machine. Rotary trommel screws, dense media separators, and other equipment create mechanical and fluid shear stress, removing contaminated silt and clay from granular soil particles. Different separation processes then create output streams consisting of granular soil, silt and clay, and wash water. This technology was accepted into the SITE Demonstration Program in 1991. It was field evaluated in Toronto, Ontario, in April 1992 and Saginaw, Michigan, in May 1992.

BioGenesis Enterprises, Inc., has developed a process that uses a specialized truck, a complex surfactant, and water to clean soil contaminated with organics. Ancillary equipment includes gravity oil and water separators, coalescing filters, and a bioreactor. All equipment used in the process is mobile, and treatment normally occurs on site. A single wash removes 85 to 99 percent of hydrocarbon contamination. High concentrations require additional washes. The BioGenesis technology, accepted into the SITE Demonstration Program in June 1990, was first demonstrated in Santa Monica, California, in May 1992.

Brice Environmental Services Corporation's soil washing plant is a portable, cost-effective, above-ground process for reducing the overall volume of contaminated soil that will require treatment. The demonstration plant is contained on an 8-by-40-foot trailer and transported with a pickup truck. The system uses conventional mineral processing equipment for deagglomeration, density separation, and material sizing, centered around a patented process for effective fine particle separation. The processing rate depends on the percentage of soil fines in the feed material. The soil washing plant was accepted into the SITE Demonstration Program in late 1991. During the SITE demonstration, which was conducted in late summer 1992 at the Alaskan Battery Enterprises Superfund site in Fairbanks, Alaska, the system processed between 2.5 and 5 tons of contaminated soil per hour. The unit can, however, operate at up to 20 tons per hour.

Canonie Environmental Services has developed a low-temperature desorption process known as low temperature thermal aeration (LTTA) technology. It removes organic contaminants from soil into a contained air stream, which is extensively treated to either collect the contaminants or to thermally destroy them. A direct-fired rotary dryer is used to heat the air stream which, by direct contact, desorbs water and organic contaminants from the soil. A second air stream treatment system can treat soil containing high concentrations of petroleum hydrocarbons. The treated soil, after meeting the treatment criteria, can be backfilled on site without restrictions. The process generates no waste water or waste soil. The LTTA technology was accepted into the SITE Demonstration Program in summer 1992. A demonstration was performed

on soil contaminated with organochlorine pesticides at a pesticide site in Arizona during September 1992.

Chemical Waste Management, Inc.'s "PO*WW*ER" technology is used for treatment and volume reduction of complex industrial and hazardous waste waters containing mixtures of inorganic salts, metals, volatile and nonvolatile organics, volatile inorganics, and radionuclides. The proprietary technology combines evaporation with catalytic oxidation to concentrate and destroy contaminants, producing high-quality water. The "PO*WW*ER" technology treats a wide spectrum of contaminants, produces high-quality effluent, destroys volatile pollutants, and achieves a high-volume reduction. The technology was accepted into the SITE Demonstration Program in 1991. It was tested on landfill leachate in September 1992 at the developer's pilot plant in Lake Charles, Louisiana.

Chemical Waste Management, Inc., has also developed the "X*TRAX" technology, a thermal desorption process that removes organic contaminants from soil, sludge, and other solid media. It is not an incinerator or a pyrolysis system. Chemical oxidation and reactions are not encouraged, and no combustion by-products are formed. The organic contaminants are removed as a condensed liquid, characterized by a high heat rating, which may then be either destroyed in a permitted incinerator or used as a supplemental fuel. Because of low operating temperatures and gas flow rates, this process is less expensive than incineration. This technology was accepted into the SITE Demonstration Program in summer 1989. EPA conducted a SITE demonstration of the technology at the Re-solve, Inc., Superfund site in Massachusetts in May 1992.

EPOC Water, Inc.'s precipitation, microfiltration, and sludge dewatering treatment process uses a combination of processes to treat a variety of wastes. In the first step of the process, heavy metals are chemically precipitated. Precipitates and all particles larger than 0.1 to 0.2 micron are filtered through a unique fabric crossflow microfilter (EXXFLOW). The concentrate stream is then dewatered in an automatic tubular filter press of the same fabric material (EXXPRESS). The EXXFLOW/EXXPRESS demonstration unit, which is transportable and mounted on skids, is designed to process approximately 30 pounds of solids per hour and 10 gallons of waste water per minute. The technology was accepted into the SITE Demonstration Program in 1989. Bench-scale tests were conducted in 1990, and the SITE demonstration was conducted in May 1992 on highly acidic mine drainage at the Iron Mountain Superfund site in Redding, California.

Peroxidation Systems, Inc., designed the peroxpure technology to destroy dissolved organic contaminants in ground water or waste water through an advanced chemical oxidation process using ultraviolet (UV) radiation and hydrogen peroxide. Hydrogen peroxide is added to the contaminated water, and the mixture is then fed into the treatment system. UV light catalyzes chemical oxidation of organic contaminants in water by its combined effect upon the organics and reaction with hydrogen peroxide. Many organic contaminants that absorb UV light may undergo a change in their chemical structure or become more reactive with chemical oxidants. More importantly, UV light catalyzes the breakdown of hydrogen peroxide to produce hydroxyl radicals, which are powerful chemical oxidants. Hydroxyl radicals react with organic contaminants, destroying them and producing harmless by-products such as carbon dioxide, halides, and water. The process produces no hazardous by-products or air emissions. This technology was accepted into the SITE Demonstration Program in April 1991. A demonstration took place in September 1992 at the Lawrence Livermore National Laboratory Site 300 Superfund site.

Resources Conservation Company developed the Basic Extraction Sludge Technology ("BEST") process, a mobile solvent extraction system that uses one or more secondary or tertiary amines to separate organics from solids and sludges. The BEST process begins by mixing and agitating the cold solvent and waste in a cold extraction tank. Solids from the cold extraction tank are transferred to the extractor/dryer, a horizontal steam-jacketed vessel with rotating paddles. The solvent mixture created by this process is then heated. As the mixture's temperature increases, the water separates from the organics and solvent.

The organics-solvent fraction is decanted and sent to a stripping column, where the solvent is recycled. The organics are discharged for recycling or disposal, and the water is passed to a second stripping column where residual solvent is recovered for recycling. The water is then typically discharged to a local waste-water treatment plant. The BEST technology was accepted into the SITE Program in 1987, and was demonstrated in July 1992 at the Grand Calumet River.

Roy F. Weston has developed the low-temperature thermal treatment (LT) system that thermally desorbs organic compounds from contaminated soil without heating the soil to combustion temperatures. The LT system consists of three parts: soil treatment, emissions control, and water treatment. Accepted into the SITE demonstration program in September 1991, the system was demonstrated as part of a proof-of-process test for full-scale remediation of lagoon sludge at a Superfund site in Adrian, Michigan, during November and December 1991.

RREL/University of Cincinnati developed a hydraulic fracturing process that creates fractures in silty clay soil to enhance the permeability. The technology creates sand-filled horizontal fractures up to one inch in thickness and 20 feet in radius. These fractures are then placed at multiple depths ranging from 5 to 30 feet below ground surface to enhance the efficiency of treatment technologies such as soil vapor extraction, *in situ* bioremediation, and pump-and-treat systems. The technology was accepted into the SITE program in July 1991 and was demonstrated in Cincinnati, Ohio, in September 1992.

SoilTech ATP Systems, Inc.'s anaerobic thermal processor is a thermal desorption process. Contaminated soil, sludge, and liquid are heated and mixed in a special, indirectly fired rotary kiln. The unit desorbs, collects, and recondenses hydrocarbons and other pollutants found in contaminated material. The unit can also be used in conjunction with a dehalogenation process to destroy halogenated hydrocarbons through a thermal and chemical process. This technology was accepted into the SITE Demonstration Program in March 1991, and has been shown at two SITE demonstrations. At the second demonstration, completed in June 1992, a full-scale unit remediated soils at the Outboard Marine Corporation site in Waukegan, Illinois.

Toronto Harbor Commission has developed a soil recycling process that removes inorganic and organic contaminants in soil to produce a reusable fill material. The process involves three technologies operating in a series. The first technology is a soil washing process that reduces the volume of material to be treated by concentrating contaminants into a fine slurry mixture. The second technology removes heavy metals from the slurry through a process of metal dissolution. The third technology, chemical hydrolysis accompanied by a biodegradation process, destroys organic contaminants concentrated in the slurry. The three integrated technologies are capable of cleaning contaminated soil for reuse on industrial sites. The Toronto Harbor Commission's soil recycling process was accepted into the SITE Demonstration Program in 1991. Demonstration sampling took place in April and May 1992.

5.4.2 Superfund Research Grants

Various sources of funding are available for Superfund-related research. One of the funding programs administered by OER is the Research Grants Program, which provides funding for research in environmental projects related to health, engineering, physics, chemistry (with separate categories for air and water), biology, and Superfund. Researchers submit applications in response to an annual solicitation.

In FY92, the Research Grants Program published a request for applications (RFA) for "Improved Pump-and-Treat Processes for Remediation of Superfund Sites." The major emphasis was on treating sites polluted by DNAPLs, including some halogenated organic solvents. Of 32 applications received in response to the RFA, the peer panel of 20 engineers judged 12 applications to be fundable. The top five applications were each funded for two years; total funding was $1.4 million.

5.4.3 Technical Assistance, Expert Advice, and Information Transfer

To encourage their use, the Agency has increased the availability of information on innovative treatment technologies. The Agency has developed several electronic information sources, publications, and training and professional development opportunities to provide more organized and targeted information.

Electronic Information Sources

The three principal EPA electronic sources of information on innovative treatment technologies are the Alternative Treatment Technology Information Clearinghouse (ATTIC), the Vendor Information System for Innovative Treatment Technologies (VISITT), and Clean-Up Information (CLU-IN):

- ATTIC, developed and implemented by ORD, integrates hazardous waste data in a centralized, searchable source that may be accessed by federal, state, and public sector users. By the end of FY92, ATTIC contained data from more than 2,400 references. Since its inception in 1989, user requests to ATTIC have increased from 120 to more than 1,000 per month.
- VISITT contains vendor-submitted performance and cost information. As of FY92, VISITT included information on 155 innovative treatment technologies offered by 97 developers and vendors. TIO provides this database on diskettes to interested potential users of innovative technologies. Since its initial development in FY91, TIO has distributed nearly 7,000 diskettes.
- CLU-IN's electronic bulletin board services offer a variety of information pertaining to innovative treatment technologies, including *Federal Register* notices regarding hazardous waste, listings of EPA publications, training program schedules, information on requests for proposals for environmental clean-up work, and a directory of EPA hazardous waste site clean-up experts.

Publications

TIO and ORD have developed a number of publications that provide information on new developments and the application of innovative treatment technologies:

- *Innovative Treatment Technologies: Semi-Annual Status Report* is a booklet that documents the selection and use of innovative treatment technologies at Superfund sites and provides technical background information. The booklet is designed to enhance communication between vendors, experienced technology users, and those who are considering innovative treatment technologies to clean up contaminated sites.
- *Tech Trends* and *Ground-Water Currents* are two quarterly bulletins published by TIO on soil remediation technologies and ground-water remediation technologies, respectively. As of FY92, these newsletters were being distributed to more than 9,000 interested subscribers, including federal and state project managers, consulting engineers, and PRPs.
- *Innovative Hazardous Waste Treatment Technologies: A Developer's Guide to Support Services* provides information to developers to assist them in developing, testing, and commercializing innovative technologies.
- *Citizen's Guides to Innovative Treatment Technologies* is a 10-volume set of publications directed toward community leaders and the interested public. The guides provide basic, readable information on technologies that may be used to clean up Superfund, RCRA corrective action, or underground storage tank sites. The guides are available in both English and Spanish.

Training and Professional Development Opportunities

TIO works with the Air and Waste Management Association, the Hazardous Waste Action

Coalition, and several other organizations to develop satellite video seminars on innovative treatment technologies. The seminars are downlinked to more than 60 locations in the United States and Canada. The four-hour seminars are targeted at federal, state, and private project managers and feature panels of technical experts in a question-and-answer format. Video topics offered through FY92 included bioremediation, bioventing, soil-vapor extraction, and thermal desorption.

In another training initiative, EPA, the California Environmental Protection Agency, the Department of Energy, and the U.S. Army Corps of Engineers hosted a conference, *The Fourth Forum on Innovative Hazardous Waste Treatment Technologies: Domestic and International*, in November 1992. The aim of the conference was to increase the awareness in the user community of technologies that are available for application. Through technical papers and poster displays, the conference introduced domestic and international innovative hazardous waste treatment technologies. Conference attendance has increased over time: approximately 800 people attended the conference in 1991 and more than 1,100 people attended in 1992.

5.5 Report on Facilities Subject to Review Under CERCLA Section 121(c)

Certain selected remedies permit hazardous substances, pollutants, or contaminants to remain on site if they do not threaten human health or the environment. CERCLA Section 121(c) requires that EPA review sites where the Agency selected such a remedy no less often than every five years after the initiation of the RA to ensure that the remedy fully protects human health and the environment. CERCLA Section 121(c) also requires that a report be submitted to Congress that lists the required facilities for which periodic reviews are required, the results of all the reviews, and any action taken as a result of the reviews. FY92 was the second year in which sites became eligible for the five-year review.

The Agency has issued guidance entitled *Structure and Components of Five-Year Reviews*, which defines the scope of five-year reviews and identifies two types of reviews: statutory reviews (required by CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan) and policy reviews (those that EPA will implement as a matter of policy). EPA also issued a fact sheet on five-year review guidance to reinforce the guidance.

By the end of FY92, EPA had conducted a total of seven five-year reviews (six more than were reflected in the report for FY91). The six additional reviews were conducted by Region 1 at the Auburn Road Landfill in New Hampshire and at the McKin Company site in Maine; by Region 5 at the FMC Corporation and the Kummer Sanitary Landfill in Minnesota; and by Region 8 at the Rose Park Sludge Pit in Utah and the Rocky Mountain Arsenal in Colorado. Three of the reviews were statutory (Auburn Road, Kummer Sanitary Landfill, and Rocky Mountain Arsenal). Three were policy reviews (FMC Corporation, McKin Company, and Rose Park Sludge Pit). At all of these sites, EPA determined that the remedies remain protective of human health and the environment. EPA will conduct future five-year reviews consistent with CERCLA Section 121(c) and Agency guidance.

At the Auburn Road site, the Kummer Sanitary Landfill, the McKin Company site, and the Rocky Mountain Arsenal, no recommendations for action were necessary as a result of the five-year reviews. At the FMC Corporation site, the Region recommended to continue O & M activities under way. At the Rose Park Sludge Pit, the Region recommended development of more enforceable deed and land use restrictions. Subsequently, those restrictions were negotiated, and the site was proposed for deletion from the NPL.

Chapter 6
Enforcement Accomplishments

The Superfund enforcement program uses the provisions of CERCLA, as amended by SARA, to maximize the involvement of potentially responsible parties (PRPs) in the clean-up process. The goals of the program are continuing to maintain high levels of PRP participation in conducting and financing cleanups through EPA's aggressive use of statutory authority; ensuring fairness and equity; and recovering Superfund monies expended by EPA for response actions.

FY92 accomplishments illustrate the growing success of the enforcement program. For the third consecutive year, EPA achieved enforcement agreements with PRPs worth more than $1 billion in PRP response work. PRPs financed more than 70 percent of the remedial designs (RDs) and remedial actions (RAs) started during the fiscal year. Through its cost recovery program, EPA collected $185.3 million in FY92 for reimbursement of Superfund expenditures, an increase of 122 percent over the $83.4 million collected in FY91.

The Agency began several initiatives in FY92 to improve the enforcement process. The Agency issued guidance for early *de minimis* settlements to expedite and improve the negotiation process and to reduce transaction costs, finalized the lender liability rule to clarify CERCLA's secured creditor exemption, and proposed a comprehensive new rule in an effort to standardize and streamline cost recovery efforts.

6.1 The Enforcement Process

The Superfund program integrates enforcement and remediation activities. To initiate the enforcement process, EPA identifies PRPs, attempts to negotiate an agreement with them to perform or pay for the cleanup, enters into a settlement if they agree, and oversees the work performed under the settlement. If the PRPs do not settle, EPA conducts the cleanup using Superfund monies and later pursues a cost recovery action against the PRPs, or issues a unilateral administrative order (UAO) compelling them to perform the cleanup. These steps are fundamental to obtaining PRP involvement in conducting response activities and recovering expended Trust Fund monies. The enforcement process is explained in more detail below.

- When a site is being proposed to the National Priorities List (NPL) or a removal action is required, EPA conducts a PRP search to identify parties that may be liable for site cleanup. PRPs include present and past owners or operators of the site, generators of waste disposed of at the site, and transporters who selected the site for disposal of hazardous waste.
- EPA notifies parties of their potential liability for future response work and for any past response costs incurred by the government. This begins the negotiation process.
- EPA attempts to encourage PRPs to undertake clean-up activities at the beginning of clean-up phases, specifically the start of removal actions, remedial investigation/feasibility studies (RI/FSs), or remedial design/remedial actions (RD/RAs). If PRPs are willing to and capable of doing the response work, the Agency will attempt to negotiate an agreement for them to conduct and finance proposed clean-up work and to pay for past government costs. An agreement for an RA must be in the form of a judicial consent

Acronyms Referenced in Chapter 6

AOC	Administrative Order on Consent
CD	Consent Decree
DOJ	Department of Justice
NPL	National Priorities List
PCBs	Polychlorinated Biphenyls
PRP	Potentially Responsible Party
RA	Remedial Action
RD	Remedial Design
RD/RA	Remedial Design/Remedial Action
RI/FS	Remedial Investigation/Feasibility Study
SACM	Superfund Accelerated Clean-Up Model
TCE	Trichloroethylene
UAO	Unilateral Administrative Order
VOC	Volatile Organic Compound

decree (CD) entered by a federal district court. An agreement for a removal action or RD may also be in the form of an administrative order on consent (AOC) issued by a Regional Administrator. Both of these agreements are enforceable in a court of law. When PRPs conduct the response work under these agreements, EPA oversees the PRPs' work. PRPs who settle may seek contribution toward the cleanup from non-settling PRPs through third-party litigation.

- If a settlement is not reached, CERCLA Section 106 provides EPA with the authority to issue a UAO requiring the PRPs to conduct the cleanup or, through the Department of Justice (DOJ), to bring suit to compel PRPs to perform the work. If the Agency issues a UAO and the PRPs do not comply, the Agency has the option of filing a lawsuit to compel the performance specified in the order. The Agency may impose statutory penalties under CERCLA Section 106 for non-compliance with a UAO, as well as treble damages under CERCLA Section 107(c)(3).
- If PRPs do not perform the response action and the site is cleaned up using Superfund monies, EPA will file suit through DOJ, when practicable, to recover the money spent. Many of these suits to recover past costs will also include EPA claims for estimated future costs. Any money recovered from the PRPs is returned to the Trust Fund.

6.2 Fiscal Year 1992 Accomplishments

In FY92, the list of Superfund enforcement accomplishments continued to grow.

6.2.1 Settlements for Response Activities

The Agency reached 241 settlements (CDs, AOCs, or UAOs in compliance) with PRPs for response activities, worth more than $1.4 billion.* This was the third consecutive year that annual response settlements exceeded $1 billion. Exhibit 6.2-1 compares the response settlements achieved in FY91 and FY92. The Agency has achieved a total of more than $7.6 billion in response settlements under the Superfund program through FY92.

Of the 241 response settlements achieved, 90 settlements, worth more than $1.2 billion, were for RD/RAs. The RD/RA settlements consisted of 42 CDs for RD/RAs, 45 UAOs for RD/RAs where PRPs were in compliance, and 3 AOCs for RDs. These settlements are a result of the 100 RD/RA negotiations started and 116 completed by EPA during the fiscal year.

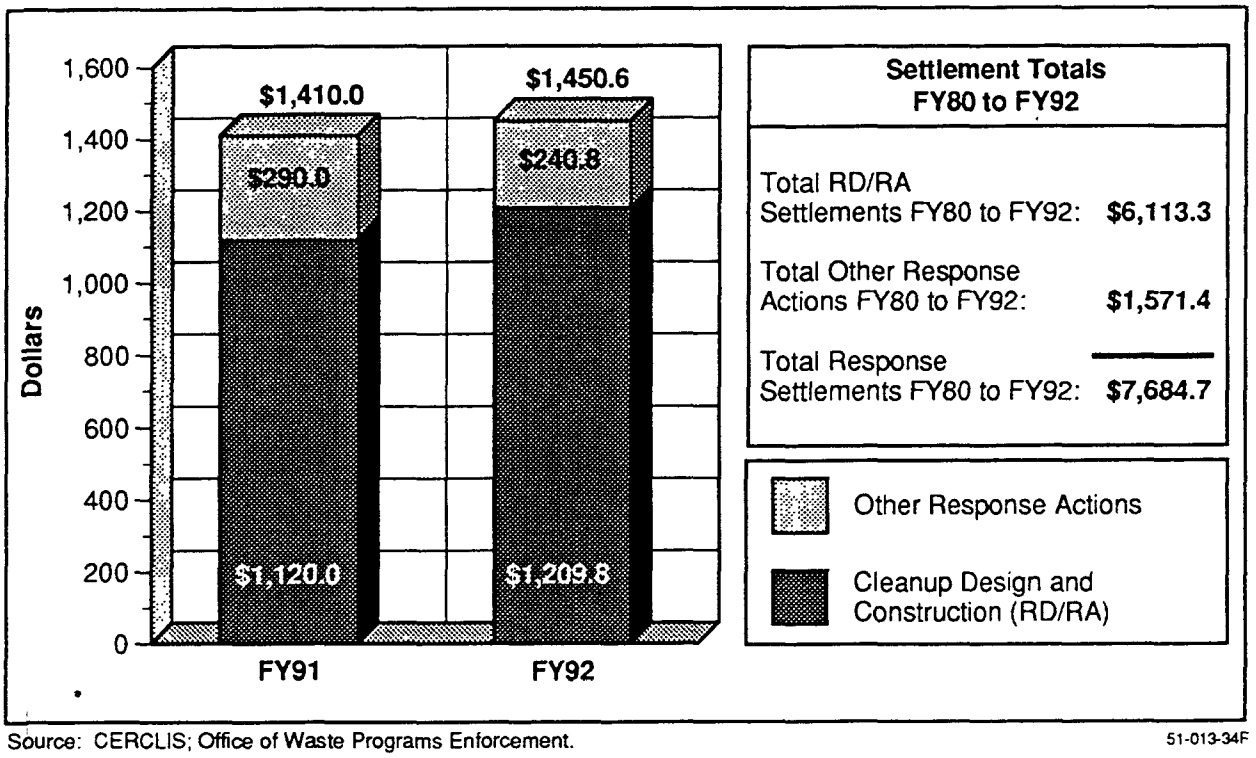
The Agency issued a total of 110 UAOs during FY92, including 48 for RD/RAs. The Agency entered a total of 135 AOCs, including the 3 for RDs. The total UAOs issued and AOCs entered include agreements for removal actions, RI/FSs, RDs, and RD/RAs.

6.2.2 PRP Participation in Clean-Up Activities

Exhibit 6.2-2 illustrates the dramatic increase in the participation of PRPs in undertaking and

* Although UAOs are not technically settlements, EPA considers them settlements because EPA utilizes UAOs to accomplish PRP response.

Exhibit 6.2-1
Estimated Value of PRP Response Settlements
(in Millions)



Source: CERCLIS; Office of Waste Programs Enforcement. 51-013-34F

financing RDs and RAs since the enactment of SARA in 1986. During FY92, PRPs continued to finance and conduct an increasing percentage of the RDs and RAs undertaken by EPA or PRPs at NPL sites.

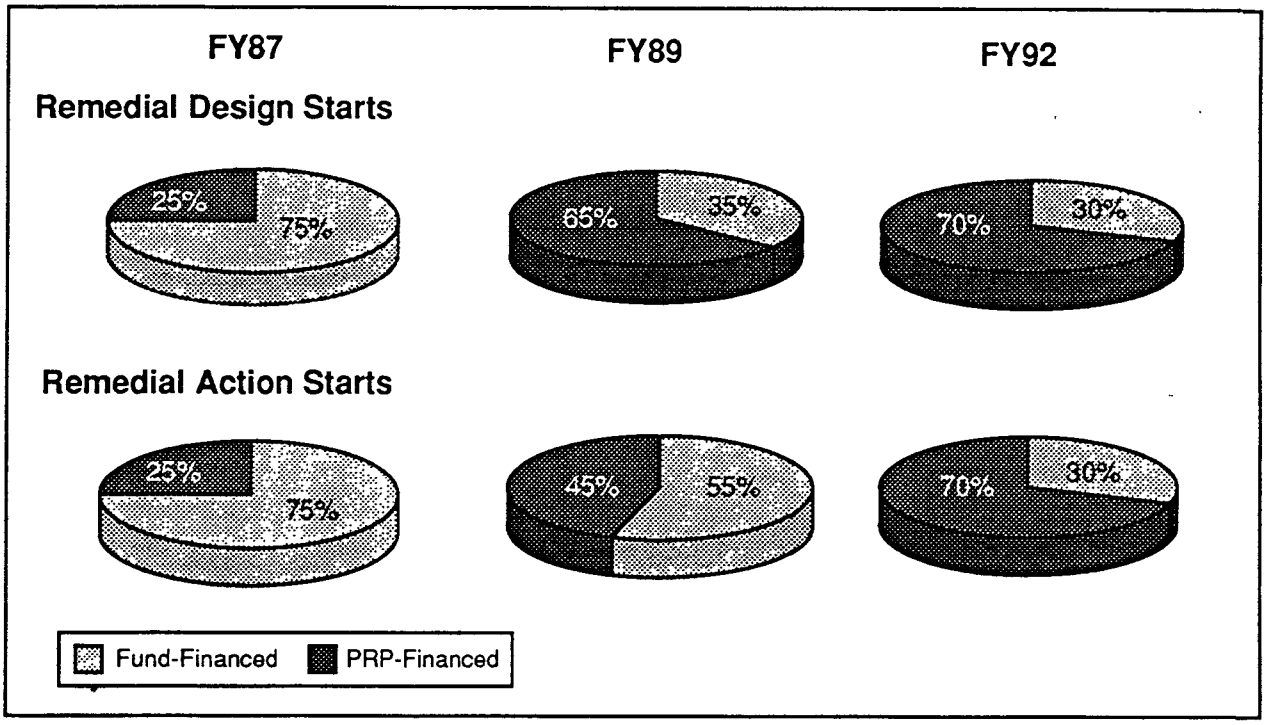
- PRPs started slightly more than 70 percent of the RDs in FY92, compared to slightly less than 70 percent in FY91; and
- PRPs started more than 70 percent of the RAs in FY92, compared to nearly 65 percent in FY91.

PRPs started fewer RI/FSs in FY92 than in FY91. PRPs undertook 50 percent of the RI/FSs in FY92, compared to 70 percent of the RI/FSs in FY91.

6.2.3 Cost Recovery Achievements

During FY92, EPA and DOJ achieved settlements worth $250.6 million for recovery of Trust Fund expenditures. These FY92 settlements represent more than 30 percent of the total $842.9 million achieved in cost recovery settlements under the program and a 74 percent increase over the $144.3 million in settlements reached in FY91. Included in FY92 settlements were 83 administrative cost recovery settlements worth $24.1 million. Exhibit 6.2-3 illustrates cost recovery settlement accomplishments for FY91, FY92, and program-to-date.

Exhibit 6.2-2
Increase in the Percentage of Remedial Designs and Remedial Actions Started by PRPs Since the Enactment of SARA



Source: CERCLIS; Office of Emergency and Remedial Response; Office of Waste Programs Enforcement. 51-013-35F

EPA collected $185.3 million on cost recovery settlements, bankruptcy settlements, and other sources. These FY92 collections represent a 122 percent increase over the $83.4 million collected in FY91 and 34 percent of the $546.3 million collected by EPA under the program-to-date. Exhibit 6.2-4 illustrates cost recovery collections for FY91, FY92 and program-to-date.

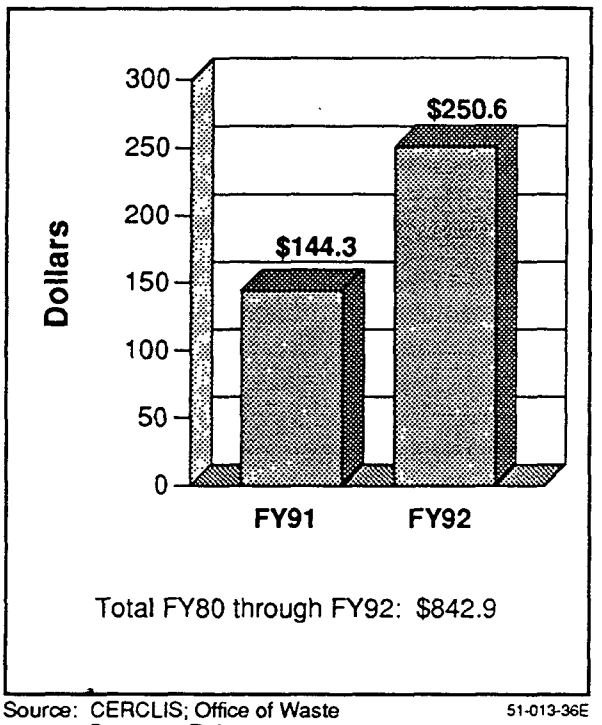
6.3 Success in Reaching and Enforcing Agreements with PRPs

During FY92, the EPA Offices of Regional Counsel and Regional Waste Management Divisions, working in conjunction with the Office of Waste Programs Enforcement, Office of Enforcement, and DOJ, entered into a number of enforcement agreements with PRPs, establishing several major enforcement precedents. Examples of significant CDs for RD/RAs, UAOs, CDs for cost recovery, and AOCs for *de minimis* settlements under CERCLA Section 122(g) are described below.

6.3.1 Consent Decrees for Remedial Design/Remedial Action

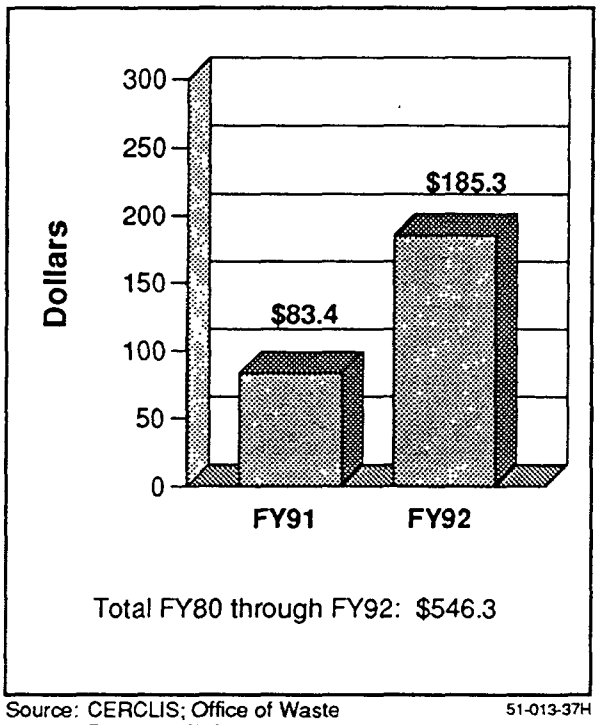
Dover Municipal Landfill, New Hampshire (Region 1): EPA reached an agreement with 25 PRPs at the Dover Municipal Landfill in Strafford County, New Hampshire. The CD was referred to DOJ on June 4, 1992, and was lodged with the U.S. District Court for the District of New Hampshire on

Exhibit 6.2-3
Cost Recovery Settlements
(in Millions)



Source: CERCLIS; Office of Waste Programs Enforcement. 51-013-36E

Exhibit 6.2-4
Cost Recovery Collections
(in Millions)



Source: CERCLIS; Office of Waste Programs Enforcement. 51-013-37H

August 7, 1992. The estimated value of the settlement is $31.6 million, representing future response costs and most of EPA's past costs. Some of the parties have agreed to perform the work at the site, and others, as "cash-out" defendants, are required to contribute to the cost of the cleanup. The work to be performed at the site includes installing a landfill cap with a leachate collection and treatment system and constructing a ground-water pump and treat system. The clean-up action is designed to remove volatile organic compounds (VOCs) and heavy metal contaminants from ground water and surface water on and near the site.

New Bedford Harbor, Massachusetts (Region 1): On August 21, 1992, a CD was referred to DOJ, and on September 4, 1992, DOJ lodged the CD with the U.S. District Court for the District of Massachusetts, settling claims for clean-up costs, injunctive relief, and natural resource damages at the New Bedford Harbor site. Under this cash-out agreement, Federal Pacific Electric Company and Cornell Dubilier Electronic, Inc., will pay $21 million. This sum includes $1 million plus accrued interest for EPA's past clean-up costs; $10 million, plus accrued interest, for environmental damage and restoration costs incurred by the National Oceanic and Atmospheric Administration and the Massachusetts Secretary of Environmental Affairs; and $10 million to fund EPA's future cleanup and natural resource restoration. The primary contaminants of concern at the site are polychlorinated biphenyls (PCBs) and metals, including lead.

Marathon Battery, New York (Region 2): On September 30, 1992, EPA referred a CD to DOJ after successfully reaching an agreement with three PRPs to clean up the 60 acre Marathon Battery site in Cold

Spring, New York. DOJ lodged the CD with the U.S. District Court for the Southern District of New York on January 6, 1993, and the court entered the agreement on January 17, 1993. Under the terms of the CD, Gould Incorporated will perform the comprehensive cleanup, and Marathon Battery Corporation and the U.S. Army will help to finance the work, estimated to cost $100 million. The three PRPs have also agreed to reimburse EPA for $9 million in past costs. The cleanup, which will be performed under EPA oversight, will address three distinct areas of the site and include treatment of cadmium-contaminated sediment and soil.

Sangamo Weston/Twelve Mile Creek/Lake Hartwell Site, South Carolina (Region 4): On April 15, 1992, EPA reached a successful agreement with Schlumberger Industries, Inc., to fund and perform the first phase of comprehensive clean-up actions at the former disposal area, located in Pickens County, South Carolina. Under the terms of the CD, which was referred to DOJ on March 4, 1992, and lodged with the U.S. District Court in South Carolina, the PRP will perform clean-up work estimated to cost $47.9 million, reimburse EPA for 100 percent of more than $0.7 million in past costs, and pay EPA's future oversight costs at the site. A unique aspect of the settlement is that Schlumberger agreed to implement any remedy that EPA selected. The Agency has chosen an alternative technology called low thermal desorption. Schlumberger also agreed to pay for further remedial action using standard technologies should the innovative method prove ineffective. Soil and ground water at the site are contaminated with PCBs.

G & H Landfill, Michigan (Region 5): EPA successfully reached an agreement with PRPs for clean-up actions at the G & H Landfill site in Macomb County, Michigan. The CD was referred to DOJ on June 30, 1992, and lodged with the U.S. District Court for the Eastern District of Michigan on September 10, 1992. Under this settlement, 14 PRPs will conduct and pay for cleanup, which is estimated to cost $40 million. The parties also agreed to reimburse EPA for approximately 50 percent of past response costs, or approximately $2.5 million. Through this settlement and previous settlements at the site, EPA has recovered all of its past costs and has succeeded in gaining the PRPs' cooperation in performing cleanup of PCBs and heavy metal contamination and in paying for future EPA oversight costs.

Hunt's Disposal Landfill, Wisconsin (Region 5): EPA successfully reached an agreement with 40 PRPs to pay for and perform the cleanup of the 35 acre Hunt's Disposal site in Caledonia, Wisconsin. The CD was referred to DOJ on March 27, 1992, and lodged with the U.S. District Court for the Eastern District of Wisconsin on April 21, 1992. Under the terms of the settlement, the parties will perform and pay for the cleanup, which is estimated to cost $21 million, including future EPA oversight costs. In addition, the PRPs will reimburse EPA for 100 percent of its past response costs incurred at the site, or approximately $1.5 million. The comprehensive cleanup addresses soil, ground water, and surface water contaminated with heavy metals and VOCs.

6.3.2 Unilateral Administrative Orders

General Motors Corporation (Central Foundry Division), New York (Region 2): The EPA Region 2 Administrator issued two UAOs to the General Motors Corporation (GM), requiring the company to clean up its 270 acre GM/Central Foundry site in Massena, New York. The first UAO, which was issued on March 31, 1992, addresses the cleanup of sediment in the St. Lawrence River and river basin, contaminated soil on the neighboring St. Regis Mohawk Reservation and on the GM Property, four lagoon areas, and the East Disposal Area. The work to be conducted under this order is estimated to cost $78 million. The second UAO, issued on August 18, 1992, requires GM to clean up a 12 acre landfill and the North Disposal Area. The estimated value of this work is $45 million. GM is complying with the UAOs.

Thermo-Chem, Inc., Michigan (Region 5): On May 6, 1992, the EPA Region 5 Administrator issued a UAO requiring 20 PRPs to conduct and pay for the cleanup at one portion of the Thermo-Chem disposal site, located in Muskegon County, Michigan.

The estimated value of the work is $24.2 million. The clean-up plan involves excavating contaminated soil and extracting contaminated ground water. The primary contaminants of concern are VOCs, including trichloroethylene (TCE), toluene, and xylene. The PRPs are complying with the UAO.

Denver Radium, Operable Unit 8, Colorado (Region 8): On August 21, 1992, the EPA Region 8 Administrator issued a UAO to the Shattuck Chemical Company to pay for and perform the cleanup of its property. The total estimated cost of the cleanup is $26 million, and the PRP is complying with the order.

The site, Denver Radium, is located in the Denver metropolitan area and consists of 44 separate properties, including the Shattuck Chemical area that is contaminated with radioactive sands and waste. Under the terms of the UAO, the PRP is dismantling several buildings on the site and shipping radioactive debris to a secure, off-site facility. In addition, radioactive soils both on the site and on nearby properties will be excavated, solidified with cement or another hardening agent, disposed of on site, and capped. Ground water is also being monitored. Under EPA supervision, PRPs will conduct long-term monitoring of the site to assure clean-up levels are met.

Gould, Inc., Oregon (Region 10): The EPA Region 10 Administrator issued a UAO to seven PRPs on January 22, 1992, directing them to clean up the 14 acre Gould, Inc., site in Portland, Oregon. In compliance with the order, the PRPs will pay for and clean up the first operable unit, which consists of contaminated soil and sediment. The total estimated value of the work is $19.4 million, including future oversight costs of $0.7 million.

At the site, soil and sediment are contaminated with high levels of lead, chromium, and arsenic, which were released during nearly four decades of lead smelting activities and lead-acid battery disposal. The PRPs are currently excavating battery casing fragments and recycling the components. In addition, they are required to excavate contaminated soil and sediment, which will be solidified with a hardening agent, disposed of on site, and covered with a soil cap. On-site air monitoring will be conducted to ensure federal, state, and local air-quality levels are met.

6.3.3 Consent Decrees for Cost Recovery

Cannons Engineering, Massachusetts/New Hampshire (Region 1): In an ongoing enforcement effort, EPA reached an agreement with six PRPs to fund clean-up actions at four Superfund sites, collectively known as the Cannons Sites Group. The sites are the Cannons Bridgewater facility in Bridgewater, Massachusetts; the Cannons Plymouth Harbor site in Plymouth, Massachusetts; the Gilson Road site in Nashua, New Hampshire; and the Tinkham's Garage site in Londonderry, New Hampshire. The CD was referred to DOJ on April 29, 1992, and lodged with the U.S District Court for the First District of Massachusetts on June 26, 1992. Under the terms of the CD, the PRPs agreed to pay EPA $5.8 million for past and future response costs. The primary contaminants affecting soil, surface water, and ground water at and around the Cannons Sites Group are VOCs and PCBs. To date, 380 settling parties, including 313 *de minimis parties*, have participated in cost recovery settlements with EPA. The estimated total value of these settlements is $59.5 million.

Fisher-Calo, Indiana (Region 5): EPA reached a successful agreement with more than 260 PRPs to clean up the 250 acre, former solvent processing and reclaiming facility located in LaPorte County, Indiana. The CD was referred to DOJ on December 30, 1991, and lodged with the U.S. District Court for the Northern District of Indiana on February 27, 1992. Under the terms of this agreement, the parties must pay for and perform site clean-up activities, which are estimated to cost $31 million, including future EPA oversight and response costs. The parties will also reimburse EPA for $3.1 million in past response cost. The primary contaminants of concern include PCBs and VOCs. Although EPA did not specify the use of innovative technologies in its clean-up plan for treating soil and ground water, the plan calls for pilot studies of alternative clean-up

methods to be conducted should additional contamination be found.

MIDCO I and MIDCO II, Indiana (Region 5): On January 10, 1992, EPA referred a CD for the MIDCO I and MIDCO II sites in Gary, Indiana, to DOJ. The CD was lodged with the U.S. District Court for the Northern District of Indiana on January 31, 1992, and entered by the court on June 23, 1992. Under the terms of the CD, which is a combined settlement for cleanup, 94 parties, including 32 *de minimis parties*, agreed to pay past costs and penalties and to finance and perform future cleanups at both of these Superfund sites. The parties will reimburse EPA a total of $5 million for past costs and pay $0.4 million in civil fines. At MIDCO I, the parties will also perform and pay for the remedy, estimated to cost $10 million. At MIDCO II, the parties agreed to pay for and perform response actions estimated to cost $13 million.

Ground water at both sites is highly contaminated with VOCs (toluene, benzene, and trichloroethylene (TCE)), as well as isoporone, cyanide, arsenic, lead, and other metals. PCBs have been detected in sediment and soil. Since 1981, EPA has undertaken a series of emergency removal actions, including removal of drums, tanks, and contaminated soil. Currently, RD efforts are underway at both sites for RAs that will include treatment of contaminated soil, sediment, and ground water.

Summit National, Ohio (Region 5): EPA successfully reached an agreement with Beazer East Company to reimburse 98 percent of costs incurred by EPA at the 11.5 acre, former liquid waste disposal facility in Deerfield, Ohio. The U.S. District Court for the District of Ohio entered the CD on February 14, 1992. The settlement requires Beazer Company to reimburse EPA $2.4 million for past costs, plus $0.2 million in interest. In a previous settlement, 64 PRPs agreed to fund and perform a comprehensive cleanup of contaminated soil, surface water, and ground water. VOCs are the major contaminants at the site.

Verona Well Field, MI (Region 5): EPA reached a successful agreement with nine PRPs for the reimbursement of past costs associated with one portion of the 160 acre well field. The CD was entered by the U.S. District Court for the Western District of Michigan on November 15, 1991. Under the terms of the agreement, the parties will reimburse EPA $11.8 million, representing 100 percent of the clean-up costs EPA incurred at this portion of the site. The primary contaminant at this portion is TCE.

Crystal Chemical Co., Texas (Region 6): EPA reached a successful agreement with the Southern Pacific Transportation Company and Voluntary Purchasing Groups Inc., to pay for the cleanup of a 6.8 acre chemical manufacturing facility in Houston, Texas. The partial CD was referred to DOJ on January 3, 1992, and lodged with the U.S. District Court for the Southern District of Texas on March 2, 1992. Under the terms of the partial CD, the two PRPs agreed to reimburse the $3 million in response costs that EPA incurred at the site through January 1, 1992. This sum represents 95 percent of the costs sought in this case. The primary contaminant at this site is arsenic, which has contaminated the ground water, soil, and surface water.

Aidex Corporation, Iowa (Region 7): EPA reached a successful agreement with eight PRPs to recover costs incurred during the cleanup of this former pesticide formulation facility located near Council Bluffs, Iowa. The CD was lodged with the U.S. District Court for the Southern District of Iowa on November 20, 1991, and entered by the court on February 6, 1992. Under the settlement, EPA and the State of Iowa will each recover 80 percent of their past costs for the cleanup of pesticide-contaminated soil, surface water, and ground water at and near the site. EPA will recover approximately $10.4 million and the State of Iowa will recover approximately $0.88 million, including $0.15 million for the cost of future ground-water monitoring. The primary contaminants affecting soil, surface water, and shallow ground water include pesticides, pesticide-related wastes, and VOCs.

Missouri Electric Works, Missouri (Region 7): EPA reached a mixed funding settlement with more than 170 PRPs, including approximately 130 *de minimis* settlers and 3 federal agencies (U.S. Army, U.S. Air Force, and the Defense Logistics Agency), in connection with the 6.5 acre Missouri Electric Works site in Cape Girardeau County, Missouri. On

June 29, 1992, DOJ lodged the CD with the U.S. District Court for the Eastern District of Missouri. Under the terms of the agreement, the PRPs will pay for comprehensive clean-up actions, estimated to cost $15 million. In addition, the *de minimis* PRPs will pay $80,000 toward EPA's total $1.2 million in past costs, which will release them from future liability. EPA will pay a maximum of 20 percent, or $3.5 million, toward the cleanup. Also, the Agency anticipates that it will take future cost recovery actions against recalcitrant PRPs to recover EPA's present share, or the "mixed" portion of the settlement.

PCBs and VOCs affect air, sediment, soil, and ground water at the site. The EPA-selected remedy provides for on-site incineration of PCB-contaminated soil, and pumping and treating of ground water by air-stripping and carbon adsorption.

Smuggler Mountain, Colorado (Region 8): Region 8 referred a CD for RD/RA to DOJ on March 20, 1992, and on May 4, 1992, the CD was lodged with the U.S. District Court for the District of Colorado. The agreement is for recovery of $3.2 million in clean-up costs incurred at the 116 acre Smuggler Mountain site in Pitkin County, Colorado, and represents a cash-out settlement for two PRPs, the Atlantic Richfield Company and the U.S. Department of the Interior. The cash-out allows EPA to recover $1.6 million from each party for past and future response costs, and exempts the parties from further responsibility for the clean-up plan. It is expected that, combined with other cost recovery actions at the site, the amount paid by each of these parties will represent 10 percent of the total response costs. The primary contaminants of concern consist of various heavy metals from previous mining and smelting operations at the site.

Indian Bend Wash Area, Arizona (Region 9): EPA reached an agreement with eight PRPs to perform the cleanup of the northern section of the Indian Bend Wash Area site in Maricopa County, Scottsdale, Tempe, Phoenix, and the Salt River Indian Reservation, Arizona. The CD was referred to DOJ on August 21, 1992, and lodged with the U.S. District Court for the District of Arizona on December 7, 1992. Under the terms of the agreement, the settling parties have agreed to reimburse EPA $5.1 million for costs incurred at the site and to provide $5 million to implement the remedy for ground-water and soil cleanup. The primary contaminants of concern are VOCs, cyanide, acids, and heavy metals, including chromium and lead.

United Chrome, Oregon (Region 10): EPA reached a successful agreement with the City of Corvallis, Oregon, to clean up the former chrome-plating facility and reimburse EPA for past costs. The CD was lodged with the U.S. District Court for the District of Oregon on June 29, 1992, and entered by the court on September 21, 1992. Under the terms of the CD, the City of Corvallis is required to pay EPA $2 million. The primary contaminant of concern at the site is chromium.

6.3.4 *De Minimis* Settlement Under CERCLA Section 122(g)

Shore Realty, New York (Region 2): On August 5, 1992, an AOC between EPA and 136 settling *de minimis* parties became effective. The *de minimis* settlement total is $2.1 million, and each PRP's responsibility will be proportional to its contribution of waste to the site. The agreement includes nearly $0.28 million for past costs and estimated future costs, and a premium of more than $1.8 million to be placed in a trust fund for use by the non-*de minimis* settlors and the State of New York for future clean-up costs at the site. Total estimated costs for the site are $9.9 million.

Tonolli Corporation, Pennsylvania (Region 3): EPA entered an AOC with 170 *de minimis* parties at the Tonolli Corporation site in Nesquehoning, Pennsylvania. The AOC, signed on July 1, 1992, resolves the liability of the participating PRPs. The settlement requires payments for past costs and estimated future response costs proportional to the volume of waste each PRP contributed to the site, plus a settlement premium of 65 percent to cover unexpected future costs. The total value of the settlement is approximately $3.5 million, including $2.4 million for past costs incurred by EPA and $1 million to finance future clean-up work at the site.

The 20 acre Tonolli Corporation site is an abandoned secondary lead smelting plant that operated from August 1974 to October 1985, when the company filed for bankruptcy. The site consists of a battery crushing operation, smelter, refinery, water treatment plant, hazardous waste landfill, and hazardous waste above-ground storage tank. The primary contaminants of concern are heavy metals, such as lead, cadmium, chromium, zinc, and arsenic. Past EPA actions have included treating lagoon and tank contents, discharging treated effluent to a nearby creek, installing a semi-permanent water collection and treatment system around waste storage areas, and excavating contaminated soil and sludge from on-site lagoons.

Alaskan Battery Enterprises, Alaska (Region 10): September 14, 1992, was the effective date of an AOC for recovering past EPA costs at the Alaskan Battery Enterprises site in Fairbanks, Alaska. Twenty-seven *de minimis* PRPs signed an AOC agreeing to reimburse EPA for more than $0.17 million. All eligible *de minimis* parties, consisting primarily of small businesses, signed the AOC.

Collectively, the settling parties sent more than 2,600 batteries to the Alaskan Battery site from the late 1960s to 1988. Battery parts were stored, recycled, and disposed of on site. As a result, soil was contaminated with lead, posing a threat to ground water. In 1988 and 1989, EPA removed approximately 4,000 cubic yards of lead-contaminated soil. A recently completed site study calls for long-term monitoring of ground water to detect any lead migration from the soil. Total response costs at the site are estimated at $3 million.

EPA encouraged the *de minimis* parties to work together to lower their transaction costs. EPA drafted the AOC, made a settlement offer to the eligible parties, made suggested changes to the AOC, and secured the participation of all parties eligible for *de minimis* settlement. EPA is pursuing additional PRPs for the unrecovered share of past costs in a separate cost recovery action.

6.4 Enforcement Initiatives

During FY92, EPA continued efforts to develop more efficient ways to encourage PRP participation in cleanups and to recover Trust Fund monies. The Agency launched several initiatives to expedite and improve the negotiation process, reduce transaction costs, and standardize and streamline cost recovery efforts.

6.4.1 Enforcement Under the Superfund Accelerated Clean-Up Model

EPA is modifying its approach to CERCLA enforcement to correspond to the changes in the clean-up program that will be brought about by the implementation of the Superfund Accelerated Clean-Up Model (SACM). The Agency is streamlining enforcement-related activities to support faster and more efficient cleanups envisioned under SACM, while continuing to maximize the amount of response work conducted by PRPs.

Major enforcement activities affected by shortened clean-up schedules under SACM include searching for PRPs, establishing PRP liability, involving PRPs in early site assessment activities, and encouraging PRPs to undertake non-time-critical removals. To expedite these activities, EPA has adopted a new, phased approach. The phased approach focuses first on a limited PRP search to establish the liability of easily identified PRPs. EPA can begin negotiations with the identified PRPs, and clean-up work can proceed while the search for additional PRPs continues. When this phased approach is used, Regions are encouraged to provide "constructive" notice, i.e., notices in local newspapers and the *Federal Register* to alert unidentified PRPs who might be interested in participating in site decisions.

6.4.2 Early *De Minimis* Guidance

EPA emphasizes the use of *de minimis* settlements under CERCLA Section 122(g) to lower transaction costs and increase case management efficiency at sites where there are large numbers of PRPs. Under this statutory provision, the Agency settles with PRPs (generators and transporters) whose waste contribution at a site is minimal in terms of both volume (usually less than one percent of the total waste volume) and toxicity. The number of *de minimis* PRPs at sites is often many times greater than the number of major waste contributors.

On June 26, 1992, EPA issued *Methodology for Early de minimis Waste Contributor Settlements, under CERCLA Section 122(g)(1)(A)*, to facilitate *de minimis* settlements. The guidance recommends that Regional officials initiate the *de minimis* settlement process as early as possible. The process includes (1) informing EPA Headquarters and notifying potential *de minimis* parties of their eligibility; (2) providing a waste-in list that identifies the specific amounts and types of waste contributed by each PRP; (3) defining the criteria for *de minimis* eligibility; (4) forming a *de minimis* settlement group early in the process; and (5) offering incentives for timely settlement. The guidance suggests procedures for standardizing the *de minimis* settlement process, including methods for estimating future costs and establishing criteria to allocate financial responsibility among PRPs. It also outlines reimbursement provisions to be included in the settlement document.

6.4.3 Final Lender Liability Rule

On April 29, 1992, to define terms and clarify potential liability of lenders and government entities as owners or operators under CERCLA, the Agency finalized the lender liability rule. The final rule clarifies the "security interest exemption" provision of CERCLA, and interprets the term "involuntary acquisition" as it pertains to government entities.

CERCLA Section 101(20)(A) exempts from liability a person who, without participating in the management of a facility, holds indication of ownership to protect a security interest. The April 29, 1992, rule clarifies which activities are and are not considered to be "participating in management."

The rule also exempts governmental entities from liability when they act as conservator or receiver of property through an involuntary acquisition or transfer. Involuntary acquisition includes abandonment proceedings, tax delinquencies, asset forfeitures, foreclosures, and seizures. Private parties are not covered by this provision of the rule.

6.4.4 Cost Recovery Initiatives

At sites where EPA has undertaken clean-up activities using Trust Fund monies, the Agency will pursue cost recovery actions requiring PRPs to reimburse the Trust Fund. To expedite the cost recovery process, the Agency proposed a rule on August 6, 1992, to clarify which costs EPA can recover through cost recovery actions. The rule

- Adds types of indirect (overhead) costs that EPA can recover;
- Identifies how costs are determined;
- Specifies when interest begins to accrue on the monies owed to the Trust Fund;
- Describes the information and documentation needed to substantiate expenditures; and
- Clarifies when the limitations period for EPA to bring a cost recovery action begins.

Although EPA has sought recovery of all direct costs incurred at a site, i.e., those directly attributable to site remediation activities, the Agency has sought to recover only a portion of its indirect costs. In contrast, the proposed rule uses full-cost accounting to identify all indirect costs incurred by the Superfund program for recovery. Additional categories of indirect costs that EPA will recover under the proposed rule include costs of

- Research and development for scientific studies, such as those involving the Superfund Innovative Technology Evaluation program;
- Depreciation of non-site-specific capital equipment, such as computer and laboratory equipment; and
- Preliminary site costs.

The proposed rule is not retroactive. The Agency will only apply the new rate to cost recovery actions that have not been finally resolved. The Agency anticipates that this rule will clarify common issues argued in cost recovery cases, thereby providing a substantial savings by reducing both PRP and EPA transaction costs.

Chapter 7
Federal Facility Cleanups

Departments and agencies of the federal government manage a vast array of industrial activities at 27,000 installations. Due to the nature of such activities, whether they be federally or privately managed, installations may be contaminated with hazardous substances. All contaminated facilities are subject to CERCLA requirements.

Although federal facilities comprise only a small percentage of the community regulated under CERCLA, most federal facilities are larger and more complex than their private industrial counterparts. The corresponding complexity of federal facility clean-up activities presents unique management issues from the standpoint of compliance with environmental statutes. To address these issues, eight of the largest federal departments and agencies reported a combined budget of approximately $8.4 billion in FY92 for environmental programs in air, drinking water, pesticides, Superfund, and other related areas.

7.1 Federal Facility Responsibility Under CERCLA

Federal departments and agencies responsible for facilities must conduct preliminary assessments (PAs), site inspections (SIs), and clean-up actions. To ensure federal facility compliance with CERCLA requirements, EPA not only provides advice and assistance, but takes enforcement action when appropriate.

Under state statutes, states also have a range of authority and enforcement tools available, in addition to those available under CERCLA, that can be used in addressing federal facility compliance with environmental regulations. Federal agency compliance can also be addressed by Indian tribes acting as either lead or support agencies for Superfund response activities.

7.1.1 Facility Responsibilities

Federal departments and agencies are responsible for identifying and addressing hazardous waste sites at the facilities that they own or operate. They are required under CERCLA to comply during site cleanup with all provisions of federal environmental statutes and regulations, as well as all applicable state and local requirements. Federal facilities track their compliance status to generate the information needed to comply with the reporting requirements.

7.1.2 EPA'S Oversight Role

EPA works through the Office of Federal Facilities Enforcement (OFFE) in the Office of Enforcement to assist federal agencies with clean-up activities. EPA responsibilities include assisting in and ultimately concurring with remedy selection, providing technical advice and assistance, reviewing federal agency pollution abatement plans, and resolving disputes regarding noncompliance. To fulfill these responsibilities, EPA relies on personnel from Headquarters, Regional offices, and states.

Acronyms Referenced in Chapter 7	
CERCLIS	CERCLA Information System
CERFA	Community Environmental Response Facilitation Act
DOD	Department of Defense
DOE	Department of Energy
DOI	Department of Interior
FFER	Federal Facilities Environmental Restoration
GSA	General Services Administration
IAG	Interagency Agreement
MOU	Memorandum of Understanding
NPL	National Priorities List
OFFE	Office of Federal Facilities Enforcement
ORD	Office of Research and Development
PA	Preliminary Assessment
POGO	Privately Owned, Government Operated
RA	Remedial Action
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RI/FS	Remedial Investigation/Feasibility Study
SI	Site Inspection
TIO	Technology Innovation Office

To track the status of federal facilities, EPA uses a number of information systems. The Facility Index System provides an inventory of federal facilities subject to environmental regulations. Through the CERCLA Information System (CERCLIS), EPA maintains a comprehensive list of all reported potentially threatening hazardous waste sites, including federal facility sites. The list of federal facilities contaminated with hazardous waste is made available to the public through the Federal Agency Hazardous Waste Compliance Docket and through docket updates published in the *Federal Register*.

7.1.3 The Role of States and Indian Tribes

Under CERCLA Section 120(f), for federal facility sites on the National Priorities List (NPL), state and local governments are encouraged to participate in the planning and selection of remedial actions taken by federal agencies in that state or local community. State and local government participation includes, but is not limited to, reviewing applicable data and developing studies, reports, and action plans. EPA encourages states to become signatories to the interagency agreements (IAGs) that federal agencies must enter into with EPA under CERCLA Section 120(e)(2). State participation in the CERCLA cleanup process is carried out as set forth in CERCLA Section 121.

Cleanups at federal facility sites that are not on the NPL are also carried out by the federal agency that owns or operates the site. These cleanups are subject to state laws regarding removal and remedial actions in addition to CERCLA. Therefore, a state's role at a non-NPL federal facility site will be determined by the state's clean-up laws, as well as by CERCLA.

CERCLA Section 126 mandates that federally recognized Indian tribes be "afforded substantially the same treatment" as states with regard to most CERCLA provisions. Therefore, a qualifying Indian tribe would have a substantially similar role in federal facility cleanups as a state. Qualifying tribes must be federally recognized; have a tribal governing body that is currently performing governmental functions to promote health, safety, and welfare of the affected population; and have jurisdiction over a site.

7.2 Progress at Federal Facility Sites

OFFE, in conjunction with various other Headquarters offices, Regional offices, and states, ensures federal department and agency compliance with CERCLA and Resource Conservation and Recovery Act (RCRA) requirements. The compliance status of federal facilities is tracked on the Federal Agency Hazardous Waste Compliance Docket. The docket contains information regarding federal facilities that manage hazardous waste or from which hazardous substances have been released.

In recent years, the number of federal facilities listed on the docket and on the NPL, which are those having highest priority for remediation under Superfund, has increased. To distinguish the increasing number of federal facility from non-federal NPL sites, EPA published Update 12 of the NPL in February 1992, listing federal facility and non-federal sites separately. This distinction helps to clarify responsibility at federal facility sites.

As CERCLA Section 120(e)(2) requires, and to facilitate cleanup, EPA negotiates IAGs at each federal facility site listed on the NPL. IAGs document clean-up activities, formalize the schedule of activities, and establish mechanisms for resolving disputes.

To keep Congress and the public informed of remedial progress at federal facility sites, CERCLA Section 120(e)(5) requires that each federal department and agency, including EPA, furnish an annual report to Congress on progress toward implementing CERCLA at its facilities. EPA's annual report is provided in Section 7.4.

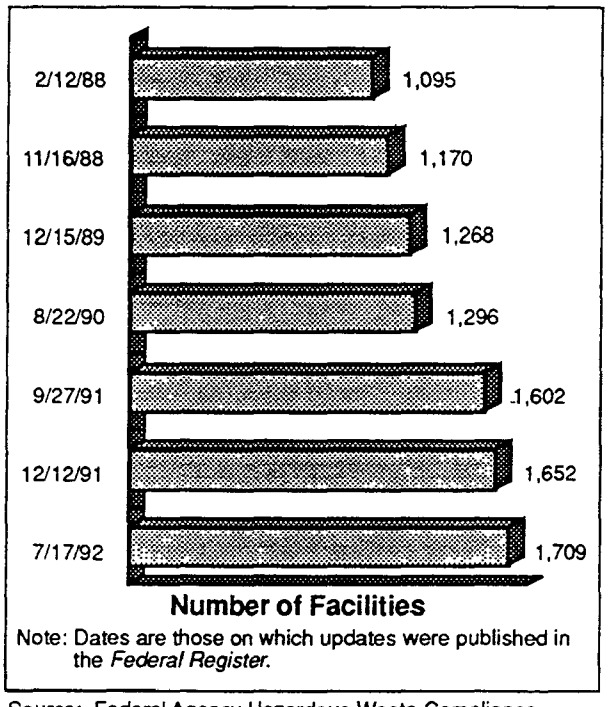
7.2.1 Federal Agency Hazardous Waste Compliance Docket

Federal facilities that have areas contaminated with hazardous substances are identified on the Federal Agency Hazardous Waste Compliance Docket, which was established under CERCLA Section 120(c). The docket functions as a comprehensive record of the federal facilities Superfund program. Information submitted to EPA on identified facilities is compiled and maintained in the docket. This information is then made available to the public.

On February 12, 1988, the initial federal agency docket was published in the *Federal Register*. At that time, 1,095 federal facilities were listed. Exhibit 7.2-1 shows the increase in the number of sites on the docket since its first publication. During FY92, a total of 211 sites were added to the docket and 104 sites were removed in docket updates on December 12, 1991 and July 17, 1992. (Facilities are removed from the docket for such reasons as incorrect reporting of hazardous waste activity or transfer from federal ownership.)

The July 17, 1992 update of the docket listed a total of 1,709 facilities. Of these sites, the Department of Defense (DOD) owned and/or operated 814 (48 percent) and the Department of the Interior (DOI) owned and/or operated 420 (25 percent). The remainder were distributed among 18 other federal departments, agencies, and instrumentalities. A breakdown of facilities on the docket, by federal department or agency, is illustrated in Exhibit 7.2-2.

Exhibit 7.2-1
Number of Federal Facilities on the Hazardous Waste Compliance Docket



Note: Dates are those on which updates were published in the *Federal Register*.

Source: Federal Agency Hazardous Waste Compliance Docket.

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In FY92, EPA added privately owned, government-operated facilities (POGOs) to the docket for the first time. The statutory basis for POGO inclusion has existed since the enactment of SARA and was specifically addressed by EPA in 1992. CERCLA Section 120(c) requires that the docket contain information submitted under RCRA Sections 3005, 3010, and 3016 and CERCLA Section 103. These sections impose duties on operators and owners of facilities. All facilities that have contaminated areas and are operated by the federal government are subject to these sections, whether or not they are government-owned.

Exhibit 7.2-2
Distribution of Federal Facilities on the Hazardous Waste Compliance Docket

Department of Defense	814	(48%)
Department of the Interior	420	(25%)
Department of Agriculture	93	(5%)
Department of Energy	76	(4%)
Department of Transportation	69	(4%)
United States Postal Service	39	(2%)
Tennessee Valley Authority	38	(2%)
Veterans Administration	28	(2%)
Civil Corps of Engineers	27	(2%)
General Services Administration	22	(1%)
Department of Justice	17	(1%)
Environmental Protection Agency	17	(1%)
National Aeronautics and Space Administration	16	(1%)
Department of Commerce	12	(0.7%)
Department of Health and Human Services	7	(0.4%)
Department of the Treasury	6	(0.4%)
Department of Labor	2	(0.1%)
Department of Housing and Urban Development	2	(0.1%)
Ownership Not Yet Determined	2	(0.1%)
Central Intelligence Agency	1	(0.06%)
Small Business Administration	1	(0.06%)
TOTAL	1,709	

Note: Percentages total less than 100% due to rounding.

Source: Federal Agency Hazardous Waste Compliance Docket and Office of Enforcement/Office of Federal Facilities Enforcement.

51-013-208

7.2.2 Progress Toward Cleaning Up Federal Facilities on the NPL

Update 12 of the NPL, published in February 1992, was the first NPL update to distinguish federal facility sites from non-federal sites. The update contains language that clarifies the roles of EPA and other federal departments and agencies with regard to federal facility sites. EPA is not the lead agency for federal facility sites on the NPL; federal agencies are lead agencies for their facilities. EPA is, however, responsible for overseeing federal facility compliance with CERCLA.

There were 125 federal facility sites on the NPL as of the end of FY92, including 116 final sites and 9 proposed sites. During FY92, six federal facilities were proposed for listing on the NPL, but no additional federal facility sites were listed as final sites.

Federal departments and agencies made substantial progress during FY92 toward cleaning up federal facility NPL sites. Activity at federal facility NPL sites during the year included starting approximately 100 remedial investigation/feasibility studies (RI/FSs), 40 remedial designs (RDs), and 30 remedial actions (RAs) and signing 46 records of decision.

7.2.3 Federal Facility Agreements Under CERCLA Section 120

IAGs comprise the cornerstone of the enforcement program addressing federal facility NPL sites. During FY92, 12 CERCLA IAGs were executed to accomplish hazardous waste cleanup at federal facility NPL sites. Of the 116 final federal facility sites listed on the NPL, 104 were covered by enforceable agreements by the end of the fiscal year.

IAGs between EPA and the responsible federal department or agency document some or all of the phases of remedial activity (RI/FS, RD, RA, operation and maintenance) to be undertaken at a federal facility NPL site. States are sometimes signatories to these agreements. IAGs formalize the procedure and timing for submittal and review of documents and include a schedule for remedial activities, in accordance with the requirements of CERCLA Section 120(e). They also establish mechanisms to resolve any disputes between the signatories. Furthermore, EPA can assess stipulated penalties under these agreements.

IAGs must comply with the public participation requirements of CERCLA Section 117 and are enforceable by the states. Citizens may enforce the agreements through civil suits. Penalties may be imposed by the courts against federal departments and agencies in successful suits brought by states or citizens for failure to comply with IAGs.

EPA took precedent-setting action in federal facility enforcement under an IAG during FY92. As part of the Hanford tri-party agreement, the Department of Energy (DOE) agreed to complete construction and initiate operation of a low-level mixed waste laboratory on or before January 31, 1992. On October 31, 1991, DOE requested that this schedule be changed. EPA and the State of Washington initially denied the request, but, after negotiating, the parties reached agreement on the dispute. As a result, DOE agreed to seek funding for expedited response actions at Hanford and to construct and operate an on-site laboratory significantly smaller than originally proposed. The agreement allows DOE one year to demonstrate that low-level mixed waste laboratory needs can be satisfied using a combination of an existing commercial laboratory and the downsized on-site laboratory that was under construction by the end of FY92. EPA and the state assessed DOE a $100,000 penalty for noncompliance with the original agreement.

7.3 · Federal Facility Initiatives

The growing awareness of environmental contamination at federal facilities has increased the public demand for facility cleanup. EPA has worked to establish priorities for clean-up programs in order to maximize cleanups with the finite resources available. In FY92, OFFE focused on priority issues including military base closure, acceleration of federal facility cleanups, interagency forums to address issues, and innovative technologies for cleanup.

7.3.1 Base Closure

During FY92, 69 military installations, not including residential facilities, were scheduled to be closed under the 1988 and 1990 base closure acts, (Public Law 100-526 and Part A of Public Law 101-510). Of these installations, 15 were on the NPL.

The base closure acts provide for the closure and realignment of installations due to revised military force needs. Bases slated for closure frequently include land and facilities suited for non-military use. This leads to pressure for the expeditious transfer of military property to non-federal interests for economic development. Many of the military installations contain contaminated areas, however, and CERCLA sets strict standards to prevent the transfer of property contaminated by hazardous substances.

During FY92, EPA worked to meet both economic and environmental goals for base closures. Building on the efforts of the Defense Environmental Response Task Force, a multi-agency group formed by Congress to examine the environmental issues associated with base closure, OFFE's Base Closure Workgroup and DOD worked to identify and implement solutions to base closure issues. In a February 1992 memorandum, EPA announced its position for balancing the protection of human health and the environment with making property available for reuse at closing installations. The memorandum identified the point in the remediation process at which EPA felt that a transfer by deed could occur. On October 19, 1992, Congress passed and the President signed the Community Environmental Response Facilitation Act (CERFA), amending CERCLA to provide for property transfers at a point comparable to that advocated by EPA. Accordingly, under CERFA, property may be transferred while long-term ground-water remedial action continues.

In June 1992, the combined efforts of EPA, DOD, and the State of California produced guidance for identifying property that is environmentally suitable for transfer. The document, *DOD Guidance on the Environmental Review Process to Reach a Finding of Suitability to Transfer*, outlines consulting roles for EPA and the state during DOD determinations. The transfer criteria address EPA's concern for the cleanup of base areas posing an environmental threat while supporting DOD's efforts to identify base areas that have near-term reuse potential. EPA reexamined this guidance in light of the concurrence role that Congress gave the Agency under CERFA. In addition, EPA began reviewing procedures DOD had proposed for leasing or transferring title of remediated parcels.

On the Regional and state levels, EPA and DOD co-sponsored conferences to foster improved communication among DOD, EPA, states, and other interested parties on clean-up facilitation, redevelopment of closing bases, and issue resolution. Conference participants met to discuss acceleration initiatives, risk management, real estate transfer and redevelopment, remediation technologies, and development of standardized techniques for cleanups at closing military bases. During FY92, conferences were held in Sacramento, California, and Boston, Massachusetts. The information exchanged at the conferences will have direct and immediate application to cleanup and redevelopment.

7.3.2 Accelerated Cleanups at Federal Facilities

OFFE developed draft guidance to identify components of the Superfund Accelerated Clean-Up Model that provide opportunities for speeding cleanup at federal facilities on the NPL. The guidance addresses site assessment, the impact of accelerated cleanup on the NPL, presumptive remedies, early and long-term actions, public participation, and the effect of accelerated cleanup on existing federal facility IAGs. As of the end of FY92, the draft guidance was undergoing Regional review.

7.3.3 Interagency Forums

During the year, EPA worked in conjunction with other federal departments and agencies to develop national policy and define environmental restoration issues at federal facilities.

Federal Facilities Clean-Up Leadership Council

To lead nationwide efforts in cleaning up federal facilities, EPA established the Federal Facilities Clean-Up Leadership Council, consisting of representatives from EPA Headquarters, Regional program offices, and Offices of Regional Counsel. At its quarterly meetings, the council serves as a forum for generating national policy and guidance; addressing technical, enforcement, and strategic planning issues; and developing a team approach toward making the federal facilities clean-up program a model of success.

Federal Facilities Environmental Restoration Dialogue Committee

In April 1992, EPA established the Federal Facilities Environmental Restoration (FFER) Dialogue Committee as an advisory committee under the Federal Advisory Committee Act. The committee provides a forum for identifying and redefining issues related to environmental restoration activities at federal facilities. The goal of the committee is to develop consensus on recommendations for improving the process by which federal facility environmental restoration decisions are made.

During the year, the FFER Dialogue Committee made substantial progress toward an interim report that will describe methods for improving the process by which federal agencies share information and involve affected parties in decision making. Through the procedures outlined in the interim report, the FFER Dialogue Committee will seek to create an open, public, interactive process that originates at the local or facility level and extends through the entire federal hierarchy of departments, agencies, and offices that are part of the Executive Branch decision-making process. The committee's recommendations are intended to institutionalize the consultative process and provide an outline of the procedures and ground rules necessary for the equitable involvement of all parties. Recommendations include creating site-specific advisory boards and developing information dissemination policies. The interim report will explicitly address priority setting in the event of a funding shortfall.

7.3.4 Innovative Technology Development

OFFE, in conjunction with the Technology Innovation Office (TIO) and the Office of Research

and Development (ORD), worked toward establishing federal facilities as development and field research centers for applying innovative technologies for source reduction, pollution control, site investigation, and site remediation.

EPA, the State of California, the Air Force, and private firms established a "public-private partnership project" to measure the performance of select technologies. McClellan Air Force Base in California was the first site used in this project, for demonstrating remediation technologies. Information discovered through the project is ultimately expected to lower costs, reduce clean-up times, and increase clean-up efficiency at federal and private sites.

OFFE and TIO explored the use of other federal and private sites for similar partnership projects. In 1992, OFFE and TIO supported an Air Force initiative to use bioventing for remediating subsurface contamination from jet fuel spills. The Air Force developed a protocol for the conditions and use of the bioventing technology, a biological treatment system that uses the injection of atmospheric air to treat contaminated soil. The protocol received a favorable review from ORD's Risk Reduction Engineering Laboratory. To encourage the review and consideration of the Air Force protocol and the potential application of bioventing for site remediation, OFFE and TIO distributed a memorandum to all EPA Regions. As of the end of FY92, the Air Force proposed bioventing for 55 sites around the nation.

In other FY92 activity, EPA signed a joint implementation plan for a memorandum of understanding (MOU) with DOE, DOD, DOI, and the Western Governors Association to examine issues and technology needs for environmental restoration and waste management in western states. Reports generated under the MOU identify barriers to technology development and address the need for a cooperative approach when developing technical solutions to environmental restoration and waste management problems. OFFE will continue to coordinate this project for EPA until a committee is formed in compliance with the Federal Advisory Committee Act, and site-specific technology projects are proposed and implemented.

7.4 CERCLA Implementation at EPA Facilities

Of the 1,709 sites on the Federal Agency Hazardous Waste Compliance Docket at the end of FY92, 17 were EPA-owned. None of these EPA-owned sites were listed on the NPL. Clean-up progress at these 17 facilities, as required by CERCLA Section 120(e)(5), is described below.

7.4.1 Requirements of CERCLA Section 120(e)(5)

CERCLA Section 120(e)(5) requires an annual report to Congress from each federal department, agency, or instrumentality on its progress in implementing Superfund at its facilities. Specifically, the annual report to Congress is to include, but need not be limited to, each of the following items:

- *Section 120(e)(5)(A)*: A report on the progress in reaching IAGs under CERCLA Section 120(e)(2);
- *Section 120(e)(5)(B)*: The specific cost estimates and budgetary proposals involved in each IAG;
- *Section 120(e)(5)(C)*: A brief summary of the public comments regarding each proposed IAG;
- *Section 120(e)(5)(D)*: A description of the instances in which no agreement (IAG) was reached;
- *Section 120(e)(5)(E)*: A progress report for conducting RI/FSs required by CERCLA Section 120(e)(1) at NPL sites;
- *Section 120(e)(5)(F)*: A progress report for remedial activities at sites listed on the NPL; and
- *Section 120(e)(5)(G)*: A progress report for response activities at facilities that are not listed on the NPL.

CERCLA also requires that the annual report contain a detailed description, on a state-by-state basis, of the status of each facility subject to this

section. The status report must include a description of the hazards presented by each facility, plans and schedules for initiating and completing response actions, enforcement status (where applicable), and an explanation of any postponement of or failure to complete response actions.

EPA has given high priority to maintaining compliance with CERCLA requirements at its own facilities. To ensure concurrence with all environmental statutes, EPA uses its environmental compliance program to heighten regulatory awareness, identify potential compliance violations, and coordinate appropriate corrective action schedules at its laboratories and other research facilities.

EPA has also instituted an environmental auditing program of EPA facilities to identify potential regulatory violations of federal (including CERCLA), state, and local statutes. By performing these detailed facility analyses, EPA is better able to assist its facilities in complying with environmental regulations.

7.4.2 Progress in Cleaning Up EPA Facilities Subject to Section 120 of CERCLA

At the end of FY92, the Federal Agency Hazardous Waste Compliance Docket listed 17 EPA-owned facilities, including one site added to the docket and two sites removed from the docket during the fiscal year. The National Air and Radiation Environmental Laboratory in Montgomery, Alabama, was added to the docket, and the Environmental Photographic Interpretation Center in Warrenton, Virginia, and the Anguilla Landfill in Fredericksted, Virgin Islands, were deleted.

EPA is required to report on progress in meeting Section 120 requirements at EPA-owned sites for reaching IAGs, conducting RI/FSs at NPL sites, and undertaking response activities at NPL and non-NPL sites.

- EPA did not have any facilities listed on the NPL as of FY92; therefore, EPA has not entered into any IAGs for remediation requiring reporting under CERCLA Sections 120(e)(5)(A), (B), (C), or (D).
- Because no EPA-owned sites are listed on the NPL, EPA has not undertaken any RI/FSs or remedial actions at NPL sites that would require reporting under CERCLA Sections 120(e)(5)(E) and (F).
- EPA has evaluated and, as appropriate, undertaken response activities at all 17 EPA sites on the docket. Exhibit 7.4-1 provides state-by-state status for EPA-owned sites and identifies the types of problems and progress of activities at each site, as required by CERCLA Section 120 (e)(5)(G).

EPA facilities that have undergone significant response activities in FY92 are discussed in detail below.

National Air and Radiation Environmental Laboratory, Alabama

EPA's air and radiation laboratory formerly operated at a site near its current location at Gunter Air Force Base in Montgomery, Alabama. During operations at the original site, waste solvents, including xylene and benzene, were discharged into a pit adjacent to the laboratory building. The releases were identified through EPA's internal auditing program. In conjunction with the Underground Injection Control Program of the Alabama Department of Environmental Management, EPA is working to determine the extent of the resulting contamination and to develop an appropriate mitigation program. The Agency is monitoring the ground-water wells on the property regularly and initiating a program to pump ground water from the contaminated area. EPA is also evaluating the use of biological remediation to address any residual contamination.

EPA Central Regional Laboratory, Maryland

EPA conducted an on-site investigation of ground-water contamination at the EPA Central

Exhibit 7.4-1
Status of EPA Facilities on the Federal Agency Hazardous Waste Compliance Docket

State	EPA Facility	Known or Suspected Problems	Project Status
AL	National Air and Radiation Environmental Laboratory (formerly known as the Eastern Environmental Radiation Facility (EERF))	Contained soil and ground-water contamination	PA completed; ongoing monitoring and remediation activities.
AR	Combustion Research Facility	No contamination	PA completed 4/89; no further remedial action planned.
CO	National Enforcement Investigation Center	No contamination	PA completed 4/88; no further remedial action planned.
FL	Environmental Research Laboratory	No contamination	PA completed 4/88; no further remedial action planned.
IL	Region 5 Environmental Services Division Laboratory	No contamination	PA completed 4/88; no further remedial action planned.
KS	EPA Mobil Incinerator	No contamination from mobile incinerator	No further remedial action planned; mobile incinerator removed from site.
KS	Region 7 Environmental Services Division Laboratory	No contamination	PA completed 4/88; no further remedial action planned.
MD	EPA Central Regional Laboratory	No contamination	PA completed 4/88. SI completed; monitoring of site ongoing.
MI	Motor Vehicle Emission Laboratory	No contamination	PA conducted 3/90; no further remedial action planned.
NC	EPA Tech Center	No contamination	PA conducted 8/91; no further remedial action planned.
NJ	EPA Raritan Depot	No contamination that poses a threat to the environment	PA/SI prompted additional investigative work currently underway.
OH	AWBERC Facility	No contamination	PA completed 4/88; no further remedial action planned.
OH	Center Hill Hazardous Waste Engineering Research Laboratory	No contamination	PA completed 4/88; no further remedial action planned.
OH	Testing and Evaluation Facility	No contamination	PA completed 4/88; no further remedial action planned.
OR	EPA Laboratory	Small-quantity generator	Conditionally exempt from PA requirements.
TX	EPA Laboratory	Small-quantity generator	Conditionally exempt from PA requirements.
WA	Region 10 Environmental Services Division Laboratory	Minor contamination attributable to DOD ownership	PA/SI prompted additional investigative work. Currently undergoing Hazard Ranking System scoring.

Source: Hazardous Waste Compliance Docket and the Office of Administration and Resources Management.

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Regional Laboratory in Annapolis, Maryland. Although the State of Maryland is satisfied that hazardous substances have not been released into the environment and that further response action is not required, the Agency continues to maintain monitoring wells at the site.

EPA Raritan Depot, New Jersey

Originally, the Raritan Depot site was owned by DOD and used for munitions testing and storage. In 1961, the General Services Administration (GSA) took possession of the property and, in 1988, transferred 165 acres to EPA. Although residual contamination from past DOD and GSA activities at the facility persists, EPA has not stored, released, or disposed of any hazardous substances on the property.

Site investigation work occurred in FY91, following the discovery of a contaminated surface-water impoundment. The investigation has resulted in the implementation of interim clean-up actions. Response activities have included spraying a rubble pile containing asbestos with a bituminous sealant; removing the liquid in the surface impoundment, excavating soil, installing a liner, and backfilling the impoundment with clean material; excavating and storing munitions; and removing underground storage tanks. EPA expects that DOD will pursue additional clean-up work at the site.

Region 10 Environmental Services Division Laboratory, Washington

EPA acquired the property from the Department of the Navy and used the land to construct an environmental testing laboratory. The property adjacent to the laboratory contains a rubble landfill that was covered by the Navy. The soil cover on the landfill has begun to deteriorate, exposing construction material. Initial sampling performed at the site revealed the presence of hazardous substances in surface-water run off. Additional sample collection and analysis was conducted to facilitate an evaluation using the Hazard Ranking System. Headquarters and Regional staff are evaluating this information to determine required action.

Chapter 8

Superfund Program Support Activities

In addition to direct clean-up and enforcement activities, EPA undertook actions in FY92 to improve community relations, enhance public access to Superfund information, and strengthen its partnership with states and Indian tribes. This chapter highlights progress in these areas, as well as progress in encouraging minority firm participation in Superfund contracting, as required by Section 105(f) of CERCLA.

8.1 Community Relations and Technical Assistance Grants

Superfund's community relations program is based on a commitment to inform citizens who are potentially affected by Superfund sites about those sites and to involve these citizens in the Superfund clean-up process. Thus, EPA directs its efforts towards

- Informing the public of planned or ongoing actions;
- Giving the public an opportunity to comment on and provide input for technical decisions; and
- Focusing on and resolving conflict.

The guideline for EPA's proactive community relations program is "early, often, and always." EPA must begin outreach activities early in the Superfund process, meet with citizens on a regular basis, and always listen to citizens' concerns. There is no formula for approaching a community; each community is unique and requires a communication strategy designed to meet its needs.

EPA's policy of enhanced community involvement is demonstrated by its continuous efforts to tailor community relations activities for each community and identify effective approaches for reaching concerned citizens. In addition to the statutorily required community relations activities, EPA often uses innovative communication techniques. For example, EPA holds "open houses" and uses various media such as public access television and video monitoring equipment to enhance information transfer between EPA and local citizens and to promote greater public understanding of and participation in site activities.

As EPA moves to streamline the Superfund process through the Superfund Accelerated Clean-Up Model, the Agency remains committed to promoting meaningful community involvement in decision making during all phases of site clean-up activity. In fact, EPA views early and frequent public involvement as pivotal to the success of EPA's mission to protect human health and the environment.

During FY92, EPA continued to improve the already active community relations program by finalizing a rule to streamline the Technical Assistance Grant (TAG) program.

Acronyms Referenced in Chapter 8

CA	Cooperative Agreement
CPCA	Core Program Cooperative Agreement
DBE	Disadvantaged Business Enterprise
IAG	Interagency Agreement
MBE	Minoirity Business Enterprise
MOU	Memorandum of Understanding
NAMC	National Association of Minority Contractors
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
NSP	Navajo Superfund Program
NTIS	National Technical Information Service
OSDBU	Office of Small and Disadvantaged Business Utilization
PRP	Potentially Responsible Party
RA	Remedial Action
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RI/FS	Remedial Investigation/Feasibility Study
SB	Small Business
SDB	Small Disadvantaged Business
SSC	Superfund State Contract
TAG	Technical Assistance Grant
WBE	Women's Business Enterprise

8.1.1 .Fiscal Year 1992 Highlights

EPA enhanced its community relations program in FY92 by improving community relations guidance, training tools, and outreach materials. For example, EPA published *Community Relations in Superfund: A Handbook*, which is the result of efforts by EPA Headquarters and Regional staff to develop a comprehensive community relations policy for the Superfund program. The handbook includes updated and expanded guidance on community relations requirements and policies, interagency coordination, and program administration. The handbook also contains guidance on the TAG program and "risk" communication. Detailed appendices in the handbook provide examples of community relations activities, samples of the community relations plan/proposed plan/responsiveness summary, and community relations directives and fact sheets.

In a parallel effort, EPA revised and expanded its community relations skills course in FY92 to ensure that EPA staff members are equipped with the latest community relations skills and techniques and that they have a thorough understanding of community relations requirements at Superfund sites. During FY93, EPA will offer this course to community relations staff across the country in various Regional offices and state capitals.

To promote a better public understanding of the Superfund program, EPA published 13 fact sheets, designed specifically for the public, on Superfund topics. The fact sheets include

- *Superfund: An Overview,*
- *Identifying Sites,*
- *The Removal Program,*
- *The Remedial Program,*
- *Exposure Pathways,*
- *Public Involvement,*
- *Community Interviews,*
- *Trichloroethylene,*
- *Arsenic,*
- *Benzene,*
- *Polychlorinated Biphenyls,*
- *Information Repository,* and
- *Information Repository (for Librarians).*

These fact sheets and other outreach documents are available to interested parties from Regional Community Relations Coordinators. In response to requests of concerned communities for better understanding of "risk," EPA also developed a course entitled *Risk Communication for Citizens:A Workshop.*

8.1.2 Technical Assistance Grants Under CERCLA Section 117(e)

The TAG program is an EPA community outreach program designed to help citizens become more knowledgeable about the technical and scientific aspects of a Superfund site and thus become better able to participate effectively in the clean-up process. CERCLA Section 117(e), as amended by SARA, authorizes EPA to award TAGs of up to $50,000 to local groups affected by National Priorities

List (NPL) sites or by sites where preliminary work has begun. Using TAG funds, local groups can employ technical advisors to assist them in understanding the conditions at hazardous waste sites and of the Superfund clean-up process.

EPA's continuing efforts to enhance the TAG program and encourage increased public participation reflect a commitment to meaningful public involvement. As part of its commitment, EPA promulgated the TAG final rule on October 1, 1992, (57*FR* 45311) to streamline TAG procedures. Under the TAG final rule,

- Procurement procedures have been simplified. The streamlined procedures expedite the process of hiring technical advisors. Recipients are no longer required to follow the procurement procedures required for larger federal grants.
- The application process has been streamlined. An application can now serve as both a Letter of Intent (to apply) and an application.
- The types of allowable activities have been expanded. Grant funds may now be used to pay an individual with the appropriate skills to manage the grant for community groups. This addition was made specifically for community groups that lack the expertise to administer a federal grant. Also, the final rule allows grant funds to be used to pay for health and safety training, if necessary, to enable the technical advisor to gain site access.
- The administrative cap of 20 percent has been reinstated. In light of the additional allowable activities, the 20 percent cap on administrative costs safeguards limited TAG funds for the intended purposes.
- Regions, rather than Headquarters, can now grant waivers of up to $50,000 for TAGs to help streamline the process. This action removes the requirement for Headquarters to approve the waiver. Additional funding also will be available for unusually large and complex sites.
- Language concerning ineligible applicants has been strengthened. The final rule clarifies the extent and nature of allowable potentially responsible party (PRP) involvement in an applicant group. It also clarifies eligibility requirements for applicants, thus enabling EPA to identify ineligible parties early in the application process.

To provide technical support to communities, EPA has awarded 103 TAGs worth more than $5 million. This total includes 37 TAGs awarded in 9 Regions in FY92. FY92 TAG awards represent a 54 percent increase over the number of TAGs awarded in FY91. Exhibit 8.1-1 illustrates the increasing number of TAGs awarded under the Superfund program since TAGs were first awarded in FY88.

8.2 A Coordinated Approach to Public Information

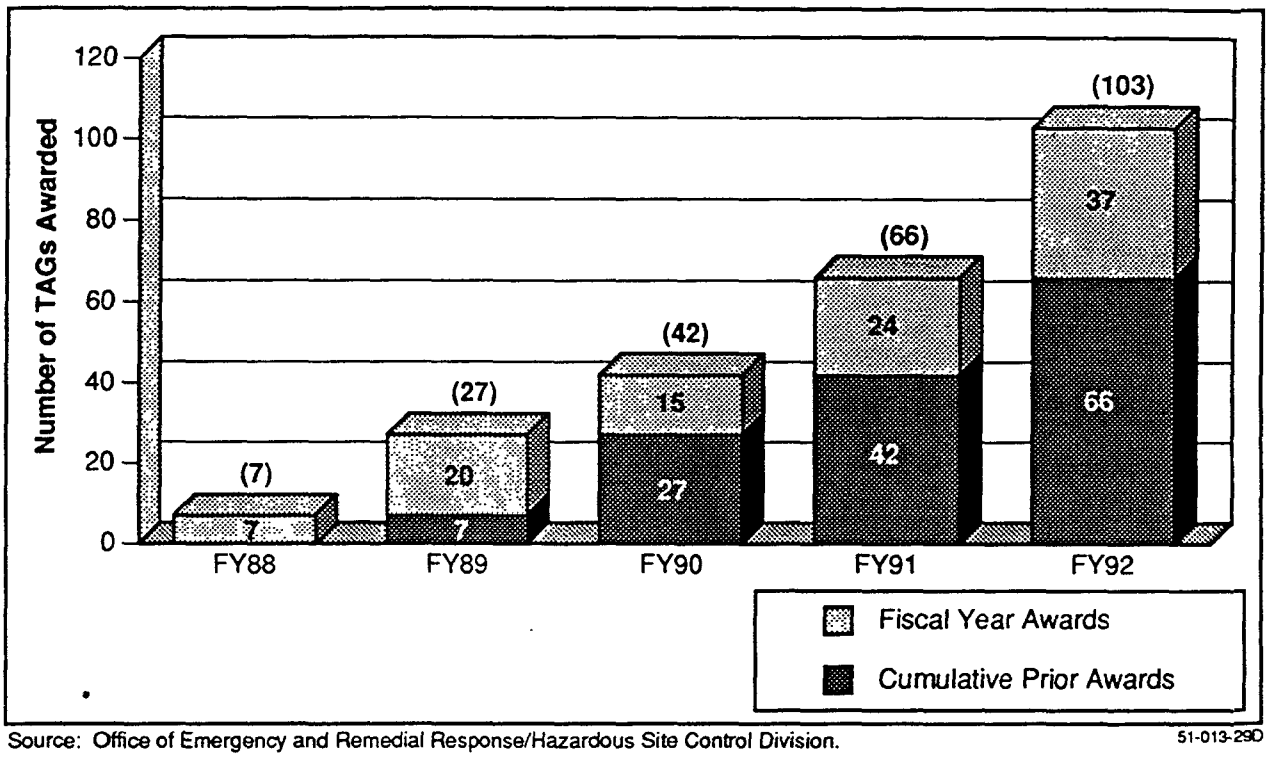
The Agency's public information outreach program is built on a system of document coordination and management. All Superfund documents are listed in the *Compendium of Superfund Program Publications* and its regular update bulletins. (Single copies of this publication are available free upon request.)

FY92 marked the end of EPA's first five-year plan to standardize and manage the extensive Superfund document collection and to incorporate it in public information and outreach activities. The plan included designing a simplified inventory management program for Superfund documents, the Superfund Docket, and the Resource Conservation and Recovery Act (RCRA)/Superfund Hotline, as well as for the services provided by the Department of Commerce's National Technical Information Service (NTIS).

EPA began several key projects that will serve as the basis for a second five-year plan to enhance information access.

- EPA established a new communications and outreach plan. Closely linked to the document management and delivery systems, its central coordinating role will help ensure that the program "speaks with one voice."

Exhibit 8.1-1
Number of Technical Assistance Grants Awarded from Fiscal Year 1988 Through Fiscal Year 1992



Source: Office of Emergency and Remedial Response/Hazardous Site Control Division. 51-013-290

- Working with NTIS, EPA launched an aggressive public campaign to make Superfund document users aware of the extensive customer-oriented services offered by NTIS. Purchases of Superfund technical documents from NTIS increased by nearly 900 percent from the close of FY91 to the close of FY92. The joint EPA-NTIS effort also resulted in better service to the customer and achieved a significant reduction in the costs of printing Superfund documents.
- EPA developed a limited centralized distribution list for EPA Regional and Headquarters personnel and state, local, and select external contacts. This centrally maintained system became fully operational during the fiscal year and is expected to result in increased efficiency and cost savings.

Superfund information services available to the public are described in detail below.

The National Technical Information Service

The Department of Commerce's NTIS serves as a permanent archive and general source of federal publications, including Superfund documents. In the past, EPA had provided more than two million Superfund documents to interested parties free of charge. Unfortunately, because of resource constraints, this approach is no longer possible. EPA, nevertheless, remains committed to ensuring that Superfund documents will continue to be available to the public. Accordingly, the Agency and NTIS have embarked on an ambitious joint project that will bring the entire Superfund collection within quick and easy reach of all users.

NTIS has established a Superfund Order Desk where users may purchase single copies or customized subscriptions for categories of documents pertinent to their needs. Pre-publication documents are available at the Superfund Order Desk prior to

completion of formal printing and distribution. The joint EPA-NTIS outreach and marketing effort during FY92 informed all regular users about this service.

In addition to quick access, the Agency's public information outreach program is committed to providing high quality documents. To ensure that both goals are met, the interagency Quality Action Team monitored the program throughout FY92 and will continue its efforts throughout FY93 under the Agency's total quality management program.

The Superfund Docket

The Superfund Docket provides public access to the materials that support proposed and final regulations. In compliance with the Freedom of Information Act, the public is allowed access to docket materials following approval of the material by the Office of General Counsel and announcement of the proposed or final regulation in the *Federal Register*. The docket also maintains viewing copies of records of decision as well as a limited stock of the *Federal Register* containing Superfund regulatory information.

Other Information Sources

The RCRA/Superfund Hotline provides information to the public and EPA personnel concerning hazardous waste regulations and policies. With regard to Superfund, the hotline is a comprehensive source of general information about ongoing program developments.

EPA also maintains the Hazardous Waste Superfund Collection at EPA Headquarters and Regional libraries. The collection contains documents ranging from records of decision to commercially produced books on hazardous waste and Superfund.

8.3 EPA's Partnership with States and Indian Tribes

EPA continues to promote and maintain its partnership with states and Indian tribes in the Superfund clean-up process. Subpart F of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and the administrative requirements in 40 *CFR* Part 35, Subpart O provide mechanisms for ensuring meaningful state and Indian tribe involvement in implementing Superfund response activities, as required by Section 121(f) of CERCLA. Subpart O describes EPA's authority to transfer funds and responsibilities to states and Indian tribes so that they can undertake response actions in accordance with the NCP. It also describes the assurances required under CERCLA Section 104 from states and Indian tribes.

8.3.1 Response Agreements and Core Program Cooperative Agreements

Response agreements provide states, Indian tribes, and political subdivisions with the opportunity to participate in response activities at sites under their jurisdiction. Superfund core program cooperative agreements (CPCAs) assist states and Indian tribes in developing their overall response capabilities.

Response Agreements

Response agreements fall into two categories: Superfund state contracts (SSCs) and cooperative agreements (CAs). Both kinds of agreements serve as the contractual tools through which states, Indian tribes, and political subdivisions work with EPA in Superfund response activities.

Certain prerequisites are common to all response agreements. States, Indian tribes, and political subdivisions must demonstrate the ability to track costs in accordance with EPA financial and administrative standards. For remedial (long-term) action to occur, they must provide the Agency with certain other assurances. These include assuring the operation and maintenance of remedies, meeting a cost-sharing requirement, assuring a 20 year capacity for disposal or treatment of hazardous wastes, providing off-site disposal, and assuring interest in real property.

Superfund State Contracts: SSCs are required when EPA is the lead agency for remedial activities. Through these contracts, states, Indian tribes, and political subdivisions provide EPA with statutorily required assurances. These contracts specify the process for collection of cost-share payments from states, Indian tribes, and political subdivisions, as required by CERCLA Section 104. The cost share is generally 10 percent of the cost of the remedial action (RA) and is not applied to planning activities such as the remedial investigation/feasibility study (RI/FS) or remedial design (RD).

SSCs also are required when a political subdivision assumes the lead for remedial activities. The parties to this kind of SSC include EPA, the state, and the political subdivision. The SSC must be in place before EPA can transfer CA funds to the political subdivision.

Lead-Agency Cooperative Agreements: Lead-agency CAs facilitate the implementation of the NCP by enabling states, Indian tribes, and political subdivisions (with appropriate hazardous waste management capability and sufficient resources) to assume lead-agency responsibility for many response activities. As the lead agency, the state, Indian tribe, or political subdivision is provided with Superfund monies to plan and manage studies, RDs, and clean-up activities at specified sites within their jurisdictions. For an RA, a state-lead CA documents the state's cost share (cash or in-kind services) and other CERCLA Section 104 assurances.

Support-Agency Cooperative Agreements: Support-agency CAs facilitate the implementation of the NCP by allowing states, Indian tribes, and political subdivisions that do not have the lead-agency responsibility to actively participate as a support agency in response activities at sites under their jurisdiction. The state, Indian tribe, or political subdivision assists the lead agency by sharing its information and expertise, and also benefits from the experience of participating in a Superfund response action.

Removal Cooperative Agreements: Removal CA funds are used by states, Indian tribes, and political subdivisions to conduct non-time-critical removal actions. Non-time-critical removal actions are those in which the nature of the action allows a planning period of more than six months. Although states, Indian tribes, and political subdivisions are not required to share in the cost of removal actions, EPA strongly encourages cost sharing. The removal CA documents the scope of work for the non-time-critical removal action.

Enforcement Cooperative Agreements: Enforcement CA funds may be used by a state to undertake PRP searches, issue notice letters for negotiation activities, undertake administrative and judicial enforcement actions, and oversee PRP response actions.

To be eligible for enforcement CA funding under Subpart O, states must submit the following to EPA:

- A letter from the state Attorney General certifying that the state has the capability to pursue enforcement actions;
- A copy of the statute that authorizes the state to undertake enforcement actions; and
- Any further documentation required by EPA to establish the state's capability to undertake the enforcement activities.

Core Program Cooperative Agreements

The legislative history of SARA Section 104(d) indicates the intent of Congress to increase the scope of CERCLA funding to include certain basic, or core, activities of states and Indian tribes that are not attributable to a specific site, but are important to the improvement of their overall response capabilities. EPA meets the requirements of SARA Section 104(d) through Superfund CPCAs.

Through CPCAs, EPA offers states and Indian tribes the opportunity to develop comprehensive, self-sufficient Superfund programs. CPCAs have a single budget and scope of work designed to enhance state or Indian tribe program activities. Approval of the budget request and scope of work is dependent on the developmental needs of a state or Indian tribe program, demonstrated progress in meeting previous core objectives, and availability of funds. States are required to provide a 10 percent cost share for core program awards.

EPA typically budgets and distributes $10 million to $13 million in CPCAs annually among the 10 Regional offices. Regions have the discretion to provide additional funding from certain other funding categories if monies are available. During FY92, 51 CPCAs were in effect for states and Indian tribes; 21 of the CPCAs had multi-year budget periods.

EPA intends that the core program lay the groundwork for the implementation of an integrated EPA-state/Indian tribe approach for meeting Superfund goals. The program is in its sixth year of implementation, and EPA is reviewing its effectiveness to identify potential areas for improvements. In FY92, EPA examined activities in six states and determined that the core program was effectively building and sustaining state programs. EPA will conduct assessments of additional states in FY93.

8.3.2 Fiscal Year 1992 Highlights

Under authority of the NCP and in compliance with administrative requirements in 40*CFR* Part 35, Subpart O, states, and Indian tribes took the lead on several federal Superfund clean-up projects during FY92. States and Indian tribes supervised the initiation of two RI/FSs, five RDs, six RAs, and two removal actions.

State Highlights

To support increased state involvement in Superfund, EPA participated in several efforts to provide states with information about the program. EPA and the Association of State and Territorial Solid Waste Management Officials sponsored a conference for state Superfund managers to exchange information on developing and implementing state and federal Superfund programs. The state/EPA conference in FY92, which was the third conference in the series, was attended by over 160 participants representing 44 states, 2 territories, 2 Indian tribes, EPA, and other federal agencies. The theme of the conference was accomplishing cleanups within budgetary constraints. Discussion areas included the clean-up process, voluntary cleanups, cost recovery, and the state role in the Superfund program.

The Agency continued to offer the response agreements seminar to provide EPA and state staff with the skills and information needed to administer CAs and SSCs. The three-day seminar provides information on the contractual mechanisms, including their purposes and applications. It identifies steps necessary to fulfill a response agreement, explains state assurances, assists state project officers in calculating a state's cost share, and describes techniques for managing response agreements. During FY92, the Agency conducted two seminars involving 52 state and federal participants. The Agency plans to conduct additional seminars during FY93.

To provide an on-line information exchange, EPA funded and developed a state Superfund network. The network is an information exchange bulletin board for state Superfund program representatives. Network services offered include weekly news items and electronic mail services, as well as a document service and databases that provide users full-text search capabilities. As of the end of FY92, efforts were underway to provide access to the network to EPA Regional Superfund offices.

Indian Tribe Highlights

In FY92, the Superfund program was actively involved in addressing hazardous waste problems on Native American lands and in assisting Indian tribes in assuming regulatory and program management responsibilities. The Superfund program continued to promote involvement by interested Indian tribes through SSCs, CAs, CPCAs, and Superfund memoranda of understanding (MOUs). Highlights of FY92 Indian tribe involvement included the following activities.

- EPA negotiated and awarded a CPCA and multi-site CA, each worth $250,000, to the All-Indian Pueblo Council (Region 6).
- EPA successfully negotiated a Superfund memorandum of agreement between Region 6 and the Inter-Tribal Environmental Council of Oklahoma (representing 22 Indian tribes).
- EPA negotiated and awarded a CPCA and a multi-site CA, of $450,000 each, to the Inter-

Tribal Environmental Council of Oklahoma. An additional $20,000 was provided for management assistance at the Tar Creek NPL site on behalf of the Quapaw Tribe (Region 6).

- The Navajo Superfund Program (NSP) received EPA funding to perform site evaluations. With this funding, NSP performed 22 preliminary assessments and 18 site inspections in FY92. The NSP also prepared a quality assurance plan for site sampling (Region 9).
- The Navajo Nation received CPCA funding to develop a tribal code, an MOU for the Navajo Abandoned Mine Lands Program concerning roles and responsibilities for cleaning up uranium mine sites, and administrative systems for addressing the November 1991 Management Assistance Program review. In addition, the agreement supports intermittent inter-governmental personal agreements to assist the nation in its program development efforts (i.e., funding to hire an attorney, an accountant, and a Superfund coordinator) (Region 9).

As an ongoing activity, representatives from EPA's Superfund program participate in the EPA/ Indian Tribe Workgroup. The workgroup, in conjunction with the EPA National Indian Program Coordinator, addresses environmental issues affecting Native Americans.

8.4 Minority Firm Participation in Superfund Contracting

Section 105(f) of CERCLA requires EPA to consider the availability of minority contractors when awarding contracts for Superfund work. EPA's Office of Small and Disadvantaged Business Utilization (OSDBU) is responsible for ensuring that the Agency complies with Section 105(f) of CERCLA and has prepared this section of the FY92 Report.

8.4.1 Minority Firm Contracting During Fiscal Year 1992

EPA satisfies Section 105(f) of CERCLA through direct and indirect procurements. EPA procures services directly from minority contractors through contracts and subcontracts. Direct procurements include Small Business Administration 8(a) contracts awarded to minority contractors, prime contracts awarded to minority firms, and subcontracts awarded to minority firms under EPA prime contracts. EPA procures services from minority contracting firms indirectly through contracts and subcontracts awarded by states, Indian tribes, and other federal departments and agencies under Superfund financial assistance agreements. Under cooperative agreements (CAs), states and Indian tribes award contracts and subcontracts to minority firms with funds transferred from Superfund to the state or Indian tribe. Other federal departments and agencies award contracts and subcontracts to minority firms with Trust Fund monies transferred to the agencies under interagency agreements (IAGs).

During FY92, EPA, through direct and indirect procurements, awarded contracts worth more than $44.5 million to minority contractors to perform Superfund work. This amount represents almost six percent of the total dollars obligated to finance Superfund work during the fiscal year. Exhibit 8.4-1 illustrates that EPA awarded most of the contract dollars ($30.8 million) to minority contractors through direct procurements. Contracts and subcontracts worth almost $2.4 million were awarded under EPA/state CAs, including a $300,000 grant for Superfund training awarded to the National Association of the Minority Contractors (NAMC), a non-profit organization. Other federal agencies awarded more than $11.3 million in contracts and subcontracts to minority firms under IAGs.

As Exhibit 8.4-2 illustrates, subcontracts accounted for the largest share of EPA direct procurements to minority firms. Subcontracts totalling $15.2 million were awarded to minority firms by EPA prime contractors. Other direct procurements included $11.9 million in Small Business Administration 8(a) contracts and $3.7 million in prime contracts to minority firms.

Exhibit 8.4-1
Minority Contract Utilization During Fiscal Year 1992

Type of Activity	Total Dollars Obligated	Minority Contractor Participation [1]	Percentage of Total
Direct Procurement	$621,300,000	$30,800,000	4.95
Cooperative Agreements	111,906,383	2,390,892	2.14
Interagency Agreements [2]	29,947,994	11,351,119	37.90
Total	**$763,154,377**	**$44,542,011**	**5.84**

[1] This does not include Women's Business Enterprise participation.
[2] This amount represents the total dollars awarded in FY92 through interagency agreements.

Source: Office of Small and Disadvantaged Business Utilization.

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Minority firms provide three kinds of services to the Superfund program: professional, field support, and construction. Exhibit 8.4-3 illustrates examples of tasks performed.

8.4.2 EPA Efforts to Identify Qualified Minority Firms

OSDBU conducted a number of outreach activities during the fiscal year to identify qualified minority firms and inform them of opportunities available in the Superfund program.

- OSDBU coordinated efforts with the Office of Acquisition Management to establish small business (SB) and small disadvantaged business (SDB) subcontracting goals for all prime contracts. These goals are monitored by contracting officials to ensure and encourage SB/SDB usage.
- In cooperation with NAMC, OSDBU conducted four training sessions to assist minority contractors in becoming more successful in obtaining Superfund direct prime contract and subcontract awards. A total of 140 participants representing 94 firms took part in the training sessions.
- OSDBU, in cooperation with the States of Utah and Connecticut, hosted minority business enterprise (MBE) and women's business enterprise (WBE) workshops to familiarize minority and women business owners with the opportunities available in Superfund and other EPA programs. A total of 200 people attended the workshops.
- EPA hosted its mid-year MBE/WBE workshop in November 1991 and its annual MBE/WBE workshop in May 1992. These workshops focused on improving minority contractor utilization in the Superfund program.

8.4.3 Efforts to Encourage Other Federal Departments and Agencies to Use Minority Contractors

OSDBU, in cooperation with the Office of Emergency and Remedial Response and Grants

Exhibit 8.4-2
Amount of Money Awarded to Minority Firms Through Direct Procurement

Type of Contracts	Total Dollars (in millions)
Small Business Administration 8(a) Contracts	$11.9
Minority Prime Contracts	3.7
Minority Subcontracts	15.2
Total	**$30.8**

Source: Office of Small and Disadvantaged Business Utilization

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Administration Division, developed special conditions that must be included in IAGs between EPA and federal agencies or departments receiving Superfund monies. These conditions ensure that these federal agencies or departments are aware of the CERCLA Section 105(f) requirement to consider the availability of minority contractors when awarding contracts for Superfund work. EPA also requires that federal agencies or departments undertaking Superfund work submit an annual report to EPA on minority contractor utilization.

OSDBU works with other federal agencies to encourage the increased use of minority contractors for Superfund work. For example, as a result of meetings with OSDBU, the U.S. Army Corps of Engineers increased its utilization of minority firms under Superfund IAGs from $0.2 million in FY91 to almost $10.7 million in FY92.

8.4.4 Publications of Interest to Minority Contractors

During FY92, EPA developed several publications to enhance minority contractor utilization in Superfund:

- *Superfund: Qualified Disadvantaged Business Utilization in State Response (April 1992)*—This quick reference sheet concentrates on Disadvantaged Business Enterprise (DBE) utilization where states are managing the cleanup of NPL sites. It focuses on DBE participatior in Superfund state programs and provides a regulatory context for contracting practices.
- *Contracting and Subcontracting Guidance to the Superfund Program (May 1992)*—This guidance document identifies subcontracting opportunities under current Superfund contracts, gives a brief description of the tasks to be performed under the subcontracts, and provides a list of individuals to contact concerning specific subcontracting opportunities.

Exhibit 8.4-3
Services Provided by Minority Contractors

Professional	Field Support	Construction
Health Assessments	Drilling/Well Installation	Site Cleanup
Community Relations	Laboratory Analysis	Excavations
Feasibility Studies		Waste Hauling & Drilling
Data Management Security		Security
Geophysical Surveys		Site Support
Remedial Investigations		Facilities
Expert Witness		
Editing		
Air Quality Monitoring		

Source: Office of Small and Disadvantaged Business Utilization.

51-013-4C

Chapter 9
Estimate of Resources

Section 301(h)(1)(G) of CERCLA requires EPA to estimate the resources needed by the federal government to complete Superfund implementation. The Agency interprets this requirement as the cost of completing cleanup at sites currently on the National Priorities List (NPL). Much of this work will occur after FY92.

Section 9.1 of this chapter includes annual information on Trust Fund resources obligated by EPA and other federal departments and agencies through FY92. An estimate of the long-term costs of cleaning up sites on the existing NPL is included in Section 9.2, together with an overview of the estimating method used. The estimate includes Trust Fund resource projections for EPA and other federal departments and agencies funded through the Trust Fund for FY93 and beyond. The estimate does not include the cost incurred by other federal agencies to clean up their sites, or potentially responsible party (PRP) contributions. Finally, Section 9.3 provides information submitted to EPA by other federal departments and agencies on their resource needs (from the Trust Fund and within their agency budgets) for FY89 to FY92, and describes their Superfund activities.

The long-term resource estimate provided in Section 9.2 is based primarily on the responsibilities and duties assigned to EPA and other federal departments and agencies by Executive Order 12580. Computing such an estimate entails making assumptions about the size and scope of the Superfund program, the nature and number of response actions, participation by states and private parties, and the increasing use of treatment technologies. For active NPL sites (those that have reached or passed the remedial investigation/feasibility study (RI/FS) planning stage), these assumptions relate to management of the workload already in the remedial pipeline and the costs of those actions. For NPL sites that have not yet entered the RI/FS planning stage, the estimating method uses many assumptions about which activities will be necessary to clean up the sites and delete them from the NPL.

In developing the long-term resource estimate, EPA considered several sources of information:

- EPA Superfund budgets and budget estimates for FY89 through FY92, including budget requests from other federal departments and agencies;
- Data submitted to EPA by other federal departments and agencies under an approved General Services Administration (GSA) Interagency Report Control Number, issued on February 5, 1988, as required under the provisions of 41 *CFR* Part 201-45.6;
- The Federal Agency Hazardous Waste Compliance Docket developed under Section 120(c) of CERCLA and each federal department's and agency's annual report to Congress on federal facility cleanup as required under Section 120(e)(5) of CERCLA; and
- Various EPA information systems, primarily the CERCLA Information System (CERCLIS) and the Integrated Financial Management System.

Specifically, EPA has estimated resource needs for FY93, and beyond. The Agency is working to identify data requirements, improve data quality, develop cost estimating methods, and collect additional information. This long-term effort has

Acronyms Referenced in Chapter 9

ATSDR	Agency for Toxic Substance and Disease Registry
	Cooperative Agreement
CA	Consent Decree
CD	CERCLA Information System
CERCLIS	Department of Energy
DOE	Department of the Interior
DOI	Department of Justice
DOJ	Federal Aviation Administration
FAA	Federal Emergency Management Agency
FEMA	General Services Administration
GSA	Interagency Agreement
IAG	Maritime Administration
MARAD	National Aeronautics and Space Administration
NASA	National Oil and Hazardous Substances Pollution
NCP	Contingency Plan
	National Institute of Environmental Health
NIEHS	Sciences
	National Oceanic and Atmospheric Administration
NOAA	National Priorities List
NPL	National Response Team
NRT	Outyear Liability Model
OLM	On-Scene Coordinator
OSC	Occupational Safety and Health Administration
OSHA	Potentially Responsible Party
PRP	Remedial Action
RA	Remedial Investigation/Feasibility Study
RI/FS	Record of Decision
ROD	Regional Response Team
RRT	Research and Special Program Administration
RSPA	Tennessee Valley Authority
TVA	United States Coast Guard
USCG	United States Department of Agriculture
USDA	Department of Veterans Affairs
VA	

been coordinated with the development of the FY94 budget. In conjunction with the revised National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and its policies affecting program direction and scope, EPA is moving closer to a more complete cost estimate for implementing CERCLA. The initial results of this effort are presented in Section 9.2 of this chapter.

EPA's ability to project the federal resource requirement for CERCLA implementation improves each year as more experience is gained. Improved coordination with other federal departments and agencies, and additional data on the implementation of the federal facilities requirement of Section 120 will also increase the accuracy of future resource estimates.

9.1 Source and Application of Superfund Resources

Since the enactment of CERCLA in 1980, Congress has provided Superfund with $10.5 billion in budget authority (FY81 through FY92). This includes $1.7 billion for FY81 through FY86, and $8.8 billion for the post-SARA period, FY87 through FY92. The FY92 budget allocated total resources of nearly $1.8 billion targeted for the following activities:

- *The Response Program* uses 79 percent of Superfund resources. Response program activities include site assessment, time-critical and non-time-critical removals, long-term clean-up actions, and program implementation activities. Also included is support provided by the Office of Water, the Office of Air and Radiation, and other federal agencies.
- *The Enforcement Program* uses 11 percent of Superfund resources. Enforcement activities include PRP negotiations, litigation, and settlements and cost recovery efforts.
- *Management and Support* uses 7 percent of Superfund resources. This category includes program analysis provided by the Office of Program Planning and Evaluation; personnel, contracting, and financial management services from the Office of Administration and Resources Management; legal services provided by the Office of General Counsel; and the audit function provided by the Office of the Inspector General.
- *Research and Development* uses 3 percent of Superfund resources for the study and validation of new environmental technologies.

Exhibit 9.1-1 presents a snapshot of the allocation of Superfund resources for FY91 and FY92 within these categories.

Exhibit 9.1-1
EPA Superfund Obligations
(in Millions)

Program Area	FY91 Actuals	FY92 President's Actuals
Response Program (Total)	$1,169.4	$1,402.7
EPA	1,032.0	1,248.9
Other Federal Agencies	137.4	153.8
Enforcement Program	173.8	191.1
Management and Support	126.8	121.5
Research and Development	83.7	65.0
TOTAL SUPERFUND	**$1,553.7**	**$1,780.3**

Source: Superfund Budget Documentation. E51-013-11B

9.1.1 Estimating the Scope of Cleanup

Site cleanup is the single largest category of Superfund expenditures and is expected to remain so in the future. To project EPA funding needs for clean-up activities, several key estimations were made, including

- The projected number and average cost of studies, remedial designs, and remedial actions (RAs) undertaken;
- The extent and cost of removal activity; and
- The proportion of direct clean-up actions undertaken by PRPs.

9.1.2 PRP Contributions to the Clean-Up Effort

The most significant way PRPs contribute to the hazardous substance clean-up effort is by undertaking and financing remedial activities (whether voluntarily or under order). When PRPs finance site clean-up efforts, potential EPA Superfund obligations for those sites are dramatically reduced; the principal remaining cost is PRP oversight. EPA continues to develop and implement policies designed to encourage PRP cleanups.

In addition to remedial and removal actions actually undertaken by PRPs, a portion of the costs of certain Fund-financed response actions will be recovered from PRPs through enforcement activities. Typically, there are significant delays between expenditures from the Trust Fund and recovery of costs.

9.2 Estimated Resources to Complete Current NPL Sites

Estimating the cost of cleaning up current NPL sites depends on a number of factors, many of which will change as the program continues to mature. The main factors are

- Changes in Superfund program policies and procedures because of the revised NCP, particularly the clean-up standards as required under Section 121 of CERCLA;
- Changes in the remedial program because of revisions to the Hazard Ranking System, as required under Section 105 of CERCLA;
- The long period required to identify, develop, select, and construct a remedy, and the need for scheduling flexibility to maximize the impact of enforcement activities;
- The level of state Superfund program activity;
- The level of PRP participation in the program; and
- The nature of and demand for removal actions.

Based on these factors, EPA uses the Outyear Liability Model (OLM) to estimate the long-term resource needs of Superfund. The OLM provides meaningful long-range forecasts with the flexibility to refine them. The model can be adjusted for a large number of program-related variables. These variables can be individually adjusted to reflect real or anticipated changes in the program.

The OLM uses three distinct methods, each based on the status of a site in the remediation process:

- Active NPL sites;
- NPL sites where the remedial process has not yet begun; and
- Non-site activities.

EPA's estimate of resources required to clean up the existing NPL sites is provided in Section 9.2.1. To develop this estimate, the Agency has concentrated on the remedial and removal programs. These programs are the major components of the Superfund program and account for the majority of Fund expenditures by the Agency. Section 9.2.2 describes these and other key OLM features.

9.2.1 Estimated Cost to Complete Existing NPL Sites

As illustrated in Exhibit 9.2-1, EPA's estimate of the total Trust Fund liability to complete cleanup of existing NPL sites is $26.9 billion. This total includes the OLM estimate of $16.5 billion for FY93 and beyond. Major assumptions shaping the long-term estimate include

- The OLM estimates only the Trust Fund cost of the existing NPL (1,275 sites, including 1,183 final, 52 proposed, and 40 deleted sites as of September 30, 1992).

Exhibit 9.2-1
Estimate of Total Trust Fund Liability to Complete Cleanup at Sites on the National Priorities List
(in Millions)

	Total Allocations
FY92 and Prior	$10,459.5
FY93 and beyond	16,465.8
TOTAL	**$26,925.3**

Source: Superfund Budget Documentation and Outyear Liability Model. 51-013-12D

- Removal activities at sites on the NPL remain at current levels.
- The RA cost estimate is $12.2 million. FY92 analyses of RA cost factors (choice of technology, site size, and technology cost) have led to a decrease in the RA cost estimate.
- Program support and other non-site elements are straightlined at the levels of the FY94 President's budget.
- Approximately 35 percent of all new RI/FS starts will be Fund-financed (i.e., the Trust Fund will pay at least 90 percent of the cost).
- For non-federal facility sites, PRPs will take the lead on 70 percent of the RAs. Oversight is significantly less expensive than cleanup; therefore, Fund costs drop dramatically when PRPs assume financial responsibility for more cleanups.
- The OLM does not generate a resource estimate for the federal facility program. Resource and programmatic assumptions have not been included in the OLM for federal facility sites.

Assumptions about the future reflect planning assumptions taken from the Superfund Program Management Manual and historical performance averages, both of which are revised periodically. EPA will continue to monitor developments that affect program costs. Changes will be incorporated into the Model as they occur, improving depiction of future programmatic direction and refining previous analysis. OLM estimates will vary over time as a result, and subsequent editions of this report will most likely contain revised estimates.

9.2.2 Program Element Assumptions Represented in the Model

To provide a better estimate of the cost of the Superfund program and the flexibility needed to estimate the costs of future initiatives, the Model includes many variables representing specific program elements.

Currently Active Sites

Remedial efforts are underway at most of the sites on the existing NPL. Remedial plans are being developed for the remaining sites on the NPL, leaving only 56 sites on the existing NPL that were inactive at the end of FY92.

Data on the active NPL sites are stored in CERCLIS and incorporated into the OLM to present the most accurate picture of planned activities. The OLM estimates ancillary activities for sites at which some level of planning or remediation activity is underway. Because most of the existing NPL sites are active, they constitute a large portion of the total liability estimate.

In addition to planned remedial activities, enforcement activities have a significant impact on the costs of addressing Superfund sites. All enforcement activities are estimated by the Model according to past program experience and several standard sequences of activities, each representing a different enforcement approach. Enforcement-related variables within the Model include costs, workyears, and the shift in remedial costs when Superfund assumes responsibility from, or passes responsibility to, a PRP. As with remedial activities, most enforcement costs and workyears are estimated.

Sites Yet To Begin the Remedial Process

The OLM uses the same general approach for all sites where the remedial process has yet to begin. Cleaning up an NPL site involves a number of different activities occurring over time and in predictable arrangements. For sites where the remedial process has yet to begin, the OLM must first approximate the activities that will be involved when remediation of the sites begins. Approximations are made by applying several "generic" activity sequences to the number of sites being estimated. When the activities have been set, cost and workyear pricing factors are applied to estimate the necessary resources. A consistent approach is used for all site-related activities, both remedial and enforcement. In the approach, tradeoffs such as avoiding clean-up costs but incurring PRP oversight costs are handled automatically as assumptions are adjusted.

The OLM includes a library of different activity sequences. Each sequence represents a "typical" site and involves different activities, durations, and schedules. In addition to the key activity starts discussed above, the OLM includes a number of other factors to control the mix of these activity sequences.

Non-Site Costs

Although non-site activities comprise a portion of the budget, individually they are fairly small and stable. For these reasons, resource needs for these activities are estimated by applying annual factors to the levels included in the FY94 President's budget.

Aside from the number of sites requiring cleanup and the cost of individual cleanups, the assumption of managerial and financial responsibility for a site has the largest potential impact on the cost of the Superfund program. There are many factors involved in establishing who is responsible for a site (referred to as the site "lead"), including

- Level of emphasis on the enforcement program;
- Willingness of states to assume financial responsibility; and
- Cost-sharing arrangements between Superfund and the states and between Superfund and the PRPs.

The Model accommodates each of these factors with one or more variables, allowing the estimation of Superfund liabilities across a wide range of site-lead and cost-sharing scenarios. Related site variables include

- Proportion of sites addressed by each lead category (Fund, PRP, state, state enforcement, and federal facility);
- Number of sites that are owned and/or operated by state or local governments; and
- Number of sites that follow each of several enforcement paths.

Choices among these variables generally affect both cost and duration of the program. Increases in PRP leads will ultimately result in lower Fund costs,

but related litigation may extend the amount of time required to reach deletion.

Factors Related to Remedial Action Costs

The method of estimating RA costs is based on analysis of RODs signed from FY87 through FY92. A statistical analysis of RA cost estimates contained in these RODs identified seven distinct cost patterns based on the choice of remedial technology. For each technology type there is a unique average cost and expected treatment volume. These factors, together with the expected usage of each technology, are the factors that control the RA cost module of the OLM.

Adjustments within the RA cost module make it possible to estimate the fiscal impact of

- Policies affecting the selection of technological approach (e.g., using more treatment and less containment);
- Changes in the contaminants found on site (e.g., if remaining sites have higher levels of heavy metals than prior sites, incineration would be less effective);
- Changes in technology costs; and
- Changes in site size.

9.3 Estimates of Resources Necessary for Other Executive Branch Departments and Agencies to Complete Superfund Implementation

The second element in fulfilling the requirements of Section 301(h)(1)(G) of CERCLA is providing an estimation of the resources needed by other federal departments and agencies for CERCLA implementation. There are no projections of future needs available for other agencies. The Superfund-related resource needs of the other Executive Branch departments and agencies for Superfund are met through two sources: the Trust Fund and the individual federal department or agency budgets.

Trust Fund monies are provided to other federal agencies through two mechanisms:

- *Interagency Budgets*: EPA provides Trust Fund monies to other federal departments and agencies that support EPA's Superfund efforts. This is accomplished through an interagency budget under Executive Order 12580.
- *Site-Specific Agreements*: EPA also provides money from the Trust Fund to other federal departments and agencies through site-specific agreements.

Federal departments and agencies also allocate monies from their budgets for Superfund-related activities through CERCLA-specific funds and general funds of the department or agency.

Exhibit 9.3-1 summarizes reported expenditures (both Trust Fund and agency budgets) from FY89 to FY92 of other federal departments and agencies. The following information was provided by the respective departments and agencies to describe their resource needs and Superfund activities.

Department of Agriculture

The U.S. Department of Agriculture (USDA) initiated a special program in FY88 to achieve compliance with the statutory and regulatory requirements of CERCLA. The program includes preassessment, assessment, removal, and remedial activities at USDA facilities throughout the United States.

The USDA has 96 sites listed on the Federal Agency Hazardous Waste Compliance Docket. None of these sites are currently listed on the NPL, but several might be added to the list in the future. The USDA sites on the docket are primarily the responsibility of the Agricultural Research Service, Farmers Home Administration, and Forest Service. Other USDA agencies, including the Animal Plant and Health Inspection Service, Commodity Credit Corporation, Food Safety Inspection Service, and Soil Conservation Service, also have a small number of CERCLA activities underway.

In general, USDA agencies have completed an

Exhibit 9.3-1
CERCLA Resource Needs and Interagency Funding for Other Federal Departments and Agencies

(Dollars in Millions)

Federal Departments and Agencies	FY89 Actual		FY90 Actual		FY91 Actual		FY92 Actual		FY89-FY92 Total	
	Trust Fund	Agency Budget	Trust Fund	Agency Budget	Trust Fund	Agency Budget	Trust Fund	Agency Budget	Trust Fund	Agency Budget
Agriculture	--	2.6	--	13.3	--	12.8	--	27.7	--	56.4
Commerce (NOAA)	2.3	0.9	2.2	0.9	2.2	1.1	2.2	1.3	8.9	4.2
Defense	--	--	--	601.3	--	1,065.0	--	1,129.4	--	2,795.7
Energy	--	112.8	--	431.6	--	1,000.0	--	1,444.6	--	2,989.0
FEMA	2.0	--	1.7	1.0	1.7	1.4	1.8	--	7.2	2.4
General Services Administration	--	--	--	--	--	--	--	0.4	--	0.4
Health and Human Services										
ATSDR	44.5	--	45.2	--	48.5	--	56.5	--	194.7	--
NIEHS	21.9	--	36.3	--	41.9	--	51.1	--	151.2	--
Interior	1.1	9.0	1.1	34.1	1.2	59.0	1.2	70.4	4.6	172.5
Justice	22.1	--	28.8	--	32.8	--	35.5	--	119.2	--
Labor (OSHA)	--	0.4	--	1.0	--	0.7	--	0.7	--	2.8
NASA	--	0.6	--	5.7	--	3.9	--	2.4	--	12.6
Tennessee Valley Authority	--	--	--	--	--	--	--	4.3	--	4.3
Transportation	--	5.8	--	7.3	--	12.5	--	20.5	--	46.1
Veterans Affairs	--	5.0	--	12.0	--	2.0	--	2.0	--	21.0
Total	**93.9**	**137.1**	**115.3**	**1,108.2**	**128.3**	**2,158.4**	**148.3**	**2,703.7**	**485.8**	**6,107.4**

Source: Office of Program Management.

51-013-13F

inventory and discovery process for USDA-owned facilities or managed lands with the following exceptions:

- The Forest Service has not completed an inventory of potential problems on the 190 million acres of land it manages with respect to abandoned mining sites or closed sanitary landfills. Most of these sites are the result of third-party activities on national forest lands that have occurred in the past under authorizing statutes, regulations, or permits. Cleanup at these sites might involve cost recovery from PRPs.
- The Forest Service acts on behalf of the Secretary of Agriculture as a federal trustee for natural resources on lands it manages that have been damaged by releases of hazardous substances. The inventory of such sites has not yet clearly been established. The Forest Service also acts for USDA in providing support and assistance to

the National Response System through the National Response Team (NRT) and the Regional Response Teams (RRTs).

Department of Commerce

The National Oceanic and Atmospheric Administration (NOAA) carries out many of the responsibilities of the Department of Commerce under CERCLA. NOAA's CERCLA goals are to (1) reduce risks to coastal habitats and resources from hazardous chemical releases through preparedness and response activities; (2) protect and restore NOAA trust habitats and resources affected by hazardous waste sites in coastal areas and; (3) enhance the state of knowledge about hazardous material interactions in coastal environments through research, development, and technology transfer.

NOAA accomplishes these goals through two networks of regional coordinators:

- NOAA's Coastal Resource Coordinators work with EPA to evaluate natural resource concerns at coastal hazardous waste sites and to ensure coordination among state and federal natural resource trustees. This work is funded largely through CERCLA. When threats to natural resources cannot be addressed through CERCLA remedial actions, NOAA may seek to repair natural resource damages through its Damage Assessment and Restoration Program. This program is funded separately from CERCLA.
- NOAA's Scientific Support Coordinators provide U.S. Coast Guard (USCG) and EPA On-Scene Coordinators (OSCs) with scientific and technical expertise in planning for and responding to oil and hazardous material releases. Scientific Support Coordinators seek to mitigate the effects of a release into coastal areas. Their work is funded by NOAA.

Department of Defense

The Department of Defense (DOD) has the authority and responsibility under CERCLA to clean up contamination associated with past activities. In 1984, DOD increased its emphasis on hazardous waste cleanup when Congress established the Defense Environmental Restoration Program. Under this program, DOD identifies, investigates, and cleans up environmental contamination from past activities for which DOD is responsible following the procedures of the NCP.

At the close of FY92, DOD owned and/or operated 814 sites listed on the Federal Agency Hazardous Waste Compliance Docket.

Department of Energy

The Department of Energy (DOE) is committed to conducting its operations in a safe and environmentally sound manner and to preventing, identifying, and correcting environmental problems during present and future operations.

DOE has issued guidance establishing policies and procedures for clean-up activities conducted under CERCLA. DOE has also developed a Five-Year Plan that will be updated annually and will integrate planning for corrective activities, environmental restoration, and waste management operations at its facilities. DOE conducts assessments at its operating facilities to monitor environmental compliance and follow up on findings. Compliance with environmental laws, regulations, and requirements is an integral part of operations at DOE facilities to ensure that risk to human health and to the environment posed by past, present, and future operations are eliminated or reduced to safe levels.

During FY92, DOE made significant progress in reaching agreements with regulatory entities, undertaking clean-up actions, and initiating preventive measures to eliminate future environmental problems. In accordance with CERCLA Section 120, DOE initiated remedial activities at all 17 DOE sites listed on the NPL, including removal actions, interim actions, and the initiation of final remediation activities. The 17 DOE NPL sites include Brookhaven National Laboratory Site, New York; Fernald Environmental Management Project (formerly known as Feed Materials Production Center), Ohio; Hanford Site, Washington; Idaho National Engineering Laboratory Site, Idaho; Lawrence Livermore National Laboratory-Main Site, California; Lawrence Livermore National Laboratory-Site 300, California;

Maywood Site, New Jersey; Monticello Mill Site, Utah; Monticello Vicinity Properties, Utah; Mound Plant, Ohio; Oak Ridge Reservation, Tennessee; Rocky Flats Plant, Colorado; Ross Complex, Washington; Savannah River Site, South Carolina; St. Louis Site, Missouri; Wayne Site, New Jersey; and Weldon Spring Site Remedial Action Project, Missouri. Since FY90, no additional DOE facilities have been listed on the NPL, and only one site (Pantex Plant, Texas) has been proposed for listing.

During FY92, DOE executed four CERCLA Section 120 interagency agreements (IAGs) for Oak Ridge Reservation, Tennessee; Brookhaven National Laboratory Site, New York; Weldon Spring Site, Missouri; and Lawrence Livermore National Laboratory-Site 300, California. DOE and EPA also began renegotiation of existing IAGs for Mound Plant, Ohio, and Weldon Spring Site, Missouri, to add the State of Ohio and the State of Missouri, respectively, as parties to the IAGs.

Department of Health and Human Services

Agency for Toxic Substances and Disease Registry: The Agency for Toxic Substances and Disease Registry (ATSDR) is a part of the Public Health Service within the U.S. Department of Health and Human Services. ATSDR's mission is to prevent or mitigate adverse human health effects and diminished quality of life resulting from exposure to hazardous substances. ATSDR is charged under CERCLA with various responsibilities, including emergency response; public health assessments, toxicological profiles, health studies, surveillance, and registries; and health education. ATSDR activities to fulfill these responsibilities are highlighted below.

ATSDR's emergency response staff is responsible for providing health-related technical support to federal, state, and local responders during emergencies caused by the release of hazardous substances. ATSDR Emergency Response Coordinators have immediate access to a wide variety of professional experts including chemists, toxicologists, environmental scientists, and medical professionals. At the request of EPA Regional offices, other federal agencies, and state and local agencies, ATSDR emergency response personnel made five on-site emergency responses and responded to requests for information related to 83 other acute events during FY92.

ATSDR participated in four simulated hazardous substances emergencies, averaging 60 participants each. Approximately 400 representatives from federal, state, and local agencies and organizations observed the simulated emergencies. ATSDR also participated in 12 smaller scale hazardous material event simulations.

Through its cooperative agreement (CA) program, ATSDR supported emergency response activities in five state health departments, improving the capability of participating states to respond to an emergency involving hazardous substances. In addition, ATSDR prepared approximately 500 health consultations and provided technical assistance to address approximately 400 other requests from EPA and other federal, state, or local agencies and organizations.

ATSDR and states in ATSDR's CA program prepared a total of 233 public health assessments, including 19 petitioned health assessments. ATSDR also conducted 118 reviews and updates of sites that were assessed early in the agency's existence and prepared summary reports for 23 lead initiative sites. In order to expand the states' abilities to produce public health assessments, ATSDR trained more than 80 state health assessors in the agency's current public health assessment methods.

At the request of EPA, ATSDR personnel and staff from states in the CA program evaluated 47 RODs and 39 RI/FS workplans to determine whether proposed remedial alternatives would minimize sites' existing and future impacts on public health.

ATSDR conducts studies of the human health effects of toxic substances for selected groups of exposed individuals. Many environmental exposures occur at levels that do not result in acute illness, but which might cause unrecognized biologic changes. In FY92, a total of 17 studies and surveillance projects were completed, and 34 studies and 21 surveillance projects were in progress.

ATSDR continued funding grants to support research into health effects related to one or more of

ATSDR priority health conditions, which include birth defects and reproductive disorders, cancer (selected anatomic sites), immune function disorders, kidney dysfunction, liver dysfunction, lung and respiratory diseases, and neurotoxic disorders. Six studies were in progress as of the end of FY92.

ATSDR supports the development of educational materials in environmental medicine for health professionals. More than 5,000 health professionals were trained in programs sponsored by ATSDR through CAs with state health departments. ATSDR also distributed over 110,000 copies of *Case Studies in Environmental Medicine* to health professionals. Nearly 1,800 health professionals received CME credit for their participation in the case studies program, which was reviewed and accepted for credit by the American Academy of Family Physicians, American College of Emergency Physicians, American Osteopathic Association, American Association of Occupational Health Nurses, and American Board of Industrial Hygiene. Five case studies were published in the journal of the American Academy of Family Physicians, *American Family Physician. Case Studies in Environmental Medicine: Nitrate/Nitrite Toxicity* was mailed in September 1992 to 38,000 members of the American Academy of Pediatrics because of the relevance of the document to the treatment of children.

National Institute of Environmental Health Sciences: The National Institute of Environmental Health Sciences (NIEHS) uses CERCLA funds to support its Worker Training Program and its Superfund Basic Research Program. NIEHS received $20 million from the FY92 appropriations to support grants under its Worker Training Program for providing occupational safety training for workers that perform dangerous jobs or manage hazardous substance emergencies. Between 1987 and 1992, the first five years of the Worker Training Program, NIEHS supported 16 primary grantees representing consortia of over 60 different organizations and local government units. During this five-year period, the program has trained over 250,000 workers across the country in 8,000 classroom and hands-on training courses that have entailed almost five million contact hours of actual training. Since the reauthorization of CERCLA in 1986, NIEHS has awarded 18 CAs to support training by eight labor organizations, five major multi-state university consortia, three joint labor-management trust funds, one community college consortium, and a non-profit occupational health center.

Now in its seventh year, the NIEHS Superfund Basic Research Program continues to provide research and training grants directed towards understanding, assessing, and attenuating the adverse effects on human health resulting from exposure to hazardous substances. Grants made under the program sponsor coordinated core research in biomedicine, including multicomponent interdisciplinary research in engineering, hydrogeology, and ecology. The research provides a broader and more detailed body of scientific information to be used by federal, state, and local agencies and by private organizations and industry in making decisions related to the management of hazardous materials.

As of FY92, NIEHS's Superfund Basic Research Program supported 18 research programs at 29 universities or institutions, encompassing more than 142 individual research projects. The following are three examples of ongoing research projects supported by the NIEHS:

- Research at the University of California explores new technologies for thermal and bioremediation of toxic wastes and seeks to identify new analytical technologies, including biomarkers, to evaluate the health effects of remediation. This research, which involves 36 scientists in ten projects and three cores, was developed in research collaborations and/or technology transfers among EPA, USDA, the U.S. Army Medical Research and Development Laboratory, the Department of Commerce, NOAA, the California Air Resources Board, Woods Hole Oceanographic Institute, and private organizations.
- Integrating biomedicine, epidemiology, ecology, and engineering disciplines, research at the New York University Medical Center assesses the

impact of hazardous waste exposure on human health, including new and sensitive methods for detecting human exposure to chemicals. This research involves 26 investigators involved in 11 projects and three cores.

- At the University of Washington, research continues on the development of biomarkers for the toxicological effects of hazardous waste chemicals. Research focuses on identifying biomarkers that may be predictive of exposure, adverse effects, and/or unusual susceptibility to toxic substances in the environment.

Department of the Interior

Each of nine bureaus and four territorial elements of the Department of the Interior (DOI) provides support to the Superfund program, primarily in assisting the NRT and RRTs. DOI's role in the program focuses on three general areas:

- Response management, including RRT assistance activities, incident-specific activities, and NPL site remedial response activities;
- Emergency response preparedness, including RRT participation, regional RRT workgroups, and RRT support; and
- Trust resources/damage assessment, including coordination of national resource trustee concerns, natural resource damage assessment briefings, and settlements of trustee resources.

DOI is involved in the full range of response and remediation activities on its lands and at its facilities. Whenever feasible, DOI seeks to prevent the generation and acquisition of hazardous wastes, including minimizing waste generation through the use of sound waste management practices. DOI manages waste materials responsibility in order to protect the natural resources and the people who live, work, and enjoy its lands and facilities. DOI is committed to moving aggressively to clean up and restore areas under its care that are contaminated.

Department of Justice

The Department of Justice (DOJ) is responsible for all judicial litigation brought under CERCLA. This responsibility includes conducting CERCLA civil judicial litigation, representing EPA in bankruptcy proceedings, prosecuting criminal violations, conducting defensive and appellate litigation, and participating as *amicus curiae* on behalf of EPA, as required to support effective implementation of the statute. In addition, DOJ provides support in negotiating consent decrees (CDs) under Sections 106, 107 and 122 of CERCLA; processes CDs in accordance with approved interagency procedures; prepares and disseminates reports on litigative activities; and keeps EPA informed of other CERCLA actions consistent with the national program.

The enforcement efforts of DOJ play a critical role in the overall Superfund program. Successful judicial actions to recover clean-up costs and replenish the Trust Fund, and actions to compel PRPs to conduct clean-ups are integral parts of EPA's enforcement strategy.

Civil litigation efforts in support of the Superfund program have been extraordinarily successful. Since 1980, DOJ, together with EPA's enforcement efforts, has achieved over 1,800 judicial settlements valued at more than $6 billion. Of this total, more than $4 billion was recovered in the last four years. In FY92, DOJ filed 154 judicial complaints (matching the highest number filed in any previous year), assessed $203 million through cost recovery actions, and forced defendants to undertake various clean-up activities valued at $894 million. The number of active Superfund cases being litigated rose from 159 cases with 523 defendants in FY87 to 551 cases with 3,908 defendants at the beginning of FY93.

Superfund money provides DOJ with the necessary attorneys, support staff, expert witnesses, and litigation support vital to the CERCLA enforcement process.

Department of Labor

Funds appropriated under general IAGs allow the Occupational Safety and Health Administration (OSHA) of the Department of Labor to provide EPA with technical assistance in the area of worker safety and health. SARA Section 126 requires OSHA to issue standards for employees engaged in hazardous

waste operations. Programs operated by OSHA or states with OSHA-approved plans protect workers at Superfund sites and support the NRT and RRTs.

OSHA performs laboratory analyses of samples collected during Superfund site inspections and maintains and calibrates technical equipment used for these inspections. OSHA develops interpretations of worker protection standards and maintains a computerized system for the interpretations and for tracking hazardous waste inspection activity. As a member of the NRT and the associated RRTs, OSHA provides assistance to these teams to complete their annual workplans, conduct paper audits of response plans, and perform technical assistance site visits.

Department of Transportation

The Department of Transportation uses funding from its budget to support CERCLA-related activities carried out by the Federal Aviation Administration (FAA), the USCG, the Maritime Administration (MARAD), and the Research and Special Programs Administration (RSPA).

Federal Aviation Administration: CERCLA activities of the FAA involve pollution abatement and hazardous waste cleanup at regional facilities.

United States Coast Guard: The USCG supports the Superfund program by providing OSCs and incident control and clean-up specialists who respond to any release or threatened release of hazardous substances in the coastal zone. USCG also undertakes pollution abatement activities related to the operation of its own facilities.

Maritime Administration: MARAD's activities in support of CERCLA involve testing and cleanup of hydrocarbons in storage tank facilities at Kings Point and other locations.

Research and Special Program Administration: RSPA activities in support of CERCLA requirements include hazardous waste rulemaking and technical support, emergency response training, hazardous materials/hazardous substances incident reporting, and emergency preparedness curriculum development. In addition, RSPA is responsible for implementing a grant program for the states that was established by the Hazardous Materials Transportation Uniform Safety Act of 1990. This grant program supports SARA-related emergency planning and training for accidents and incidents involving hazardous materials.

Department of Veterans Affairs

From FY89 through FY92, the Department of Veterans Affairs (VA) budgeted $21 million for Superfund cleanup and other construction activity related to hazardous waste. VA anticipates that it will make additional budgetary requests in the future to cover its liability under Superfund. At present, VA has been identified as a relatively small contributor of hazardous waste at about 10 Superfund sites.

Federal Emergency Management Agency

The enactment of SARA in 1986 made many of the voluntary preparedness and planning activities of the Federal Emergency Management Agency (FEMA) ineligible for funding under the Superfund budget after September 30, 1987.

To continue the ongoing Superfund assistance to state and local governments and to support efforts to implement Title III of SARA, FEMA consolidated funding requests under two separate appropriation authorizations. Funding for Superfund activities was requested under the Superfund interagency budget. The remainder of FEMA's hazardous materials activities, including those authorized by SARA Title III, was incorporated into FEMA's own operating budget (under its technological hazards budget). Since FY87, no additional funds have been requested under CERCLA Section 301(h)(1)(G) to carry out Superfund activities.

Funding received under Superfund is used to provide guidance, technical assistance and interagency coordination for FEMA and multi-agency initiatives that support state and local responsibilities required under Superfund. Interagency coordination is accomplished primarily through the NRT/RRT structure. FEMA chairs the NRT preparedness and training committees and provides staff support to the NRT, RRTs, and supporting subcommittees.

FEMA activities in support of state and local governments include evaluating exercises focusing

on specific Superfund sites; providing guidance and technical assistance in the design and development of hazardous material exercises to include jurisdictions within and around Superfund sites; providing guidance and technical assistance in the development and revision of hazardous material plans addressing Superfund issues to ensure their adequacy and consistency with the NCP; providing training and course materials for constituencies involved in various Superfund clean-up activities; supporting the NRT-sponsored National Hazardous Materials Conference to coordinate efforts for improving hazardous material emergency preparedness nationwide; and completing the temporary and permanent relocation programs started in FY91 (e.g., Times Beach, Forest Glenn).

General Services Administration

Resources for environmental studies and corrective projects are included in the GSA budget and can be used for CERCLA studies/corrective projects, if necessary. GSA does not have any sites on the NPL, although it has completed a cleanup at a non-NPL site.

National Aeronautics And Space Administration

The National Aeronautics and Space Administration's (NASA's) environmental compliance and restoration program was initiated in FY88 to ensure compliance with statutory environmental requirements. This program provides the means to conduct environmental compliance monitoring, site cleanups, and restoration measures at NASA field installations, government-owned industrial plants, and other locations where NASA is required to contribute to clean-up costs. CERCLA-related activities are being addressed as part of the program, including studies, assessments, RI/FSs, and RAs. During FY92, there were no NASA-owned sites listed on the NPL, but the revised Hazard Ranking System criteria may result in future listing of sites. As ongoing studies and assessments continue and pending regulatory reviews are completed, clean-up activities are expected to proceed.

Tennessee Valley Authority

The Tennessee Valley Authority (TVA) is committed to operating and maintaining its facilities and properties in compliance with statutory environmental requirements.

The TVA has no facilities listed on the NPL, and none of its facilities have been proposed for listing. TVA, however, is currently involved in a site cleanup under a RCRA corrective action. In addition, TVA has commenced a program to evaluate site contamination and remediation beyond that required by regulations. TVA is also involved in several research and development projects involving new remediation technologies.

Appendix A
Status of Remedial Investigations, Feasibility Studies, and Remedial Actions at Sites on the National Priorities List in Progress on September 30, 1992

Appendix A satisfies the combined statutory requirements of CERCLA Sections 301(h)(1)(B) and (F). Accordingly, this appendix reports the status and estimated completion date of all remedial investigation/feasibility study (RI/FS) and remedial action (RA) Title I projects in progress at the end of FY92. This appendix also provides notice of RI/FSs and RAs that EPA presently believes will not meet its previously published schedule for completion, and includes new estimated dates of completion, as required by Section 301(h)(1)(C). These dates were previously published in Appendix A of *Progress Toward Implementing Superfund: Fiscal Year 1991*. In addition to meeting these statutory requirements, this appendix lists new remedial projects that were begun in FY92 and were in process at the end of FY92. Listed activities may include remedial projects at several operable units on a single site, as well as first and subsequent activities at a single operable unit.

Information in the appendix is organized under the following headings:

- **RG** — EPA Region in which the site is located.
- **ST** — State in which the site is located.
- **Site Name** — Name of the site, as listed on the National Priorities List (NPL).
- **Location** — Location of the site, as listed on the NPL.
- **Operable Unit** — Operable unit at which the corresponding remedial activity is occurring; a single site may include more than one operable unit.
- **Activity** — Type of project in progress on September 30, 1992.
- **Lead** — The entity leading the activity, as follows:

  EP: Fund-financed with EPA employees performing the project, not contractors;

  F: Fund-financed and federal-lead by the Superfund remedial program;

  FE: EPA enforcement program-lead;

  FF: Federal facility-lead;

  MR: Mixed funding; monies from both the Fund and potentially responsible parties (PRPs);

PRP: PRP-financed and conducted;

PS: PRP-financed work performed by the PRP under a state order (may include federal financing or federal oversight under an enforcement document);

S: State-lead and Fund-financed; and

SE: State enforcement-lead (may include federal financing).

Remaining terms used in the CERCLA Information System (CERCLIS) database, **O** (other), **SN** (state-lead and state-financed, no Fund money), and **SR** (state-ordered PRP response activities), are excluded from this status report because they do not include federal financing.

For some activities, the indicated lead is followed by an asterisk (*), which indicates that funding for the activity was taken over by the indicated lead during FY92.

- **Funding Start** — The date on which funds were allocated for the activity.
- **Previous Completion Schedule** — For projects ongoing at the end of FY91 that continued into FY92, the quarter and fiscal year of the planned completion date for the activity, as of September 30, 1991. This column is blank for projects that were begun in FY92.
- **Present Completion Schedule** — The quarter and fiscal year of the planned completion of the activity, as of September 30, 1991. This information was compiled from CERCLIS on November 11, 1992.
- **Status** — Status of the project with respect to previous (FY91) and present (FY92) published completion schedules, as follows:

On-schedule projects are designated by a zero (0).

Projects that are **behind schedule** are designated by a numeral indicating the number of quarters that the project is behind schedule and a minus sign (e.g., -4).

Projects that are **ahead of schedule** are designated by a numeral indicating the number of quarters that the project is ahead of schedule (e.g., 4).

Projects for which **EPA has not estimated a completion date** are designated by an asterisk (*).

Projects that were begun in FY92 are described as **new** in the status column.

Projects described as **DNE** (date newly entered) have funding starts in previous fiscal years and no date in the Previous Completion Schedule. These sites, for numerous reasons, were not entered into CERCLIS during the fiscal year of the funding start, or a change in the status of the site or activity now requires that the activity be published in the FY92 Report. For example, several activities with the status of DNE were state enforcement-lead or state-lead and state-financed before FY92, and therefore did not fall under the requirements of CERCLA Section 301(h)(1)(B). During FY92, a lead change resulted in Fund money being used in the clean-up activities; therefore, they are now included in this appendix.

An initial completion schedule is required to be put into CERCLIS when an activity is entered. Plans at this point are based on little site knowledge. As work continues, schedules are adjusted to reflect actual site conditions.

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STATUS OF REMEDIAL INVESTIGATIONS, FEASIBILITY STUDIES, AND REMEDIAL ACTIONS IN PROGRESS ON SEPTEMBER 30, 1992

RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
1	CT	Barkhamsted-New Hartford Landfill	Barkhamsted	01	RI/FS	RP	09/30/91	4	93	1	95	-5
1	CT	Beacon Heights Landfill	Beacon Falls	02	RA	RP	03/31/92			1	94	new
1	CT	Kellog-Deering Well Field	Norwalk	03	RI/FS	EP	05/16/90	3	93	4	99	-25
1	CT	Linemaster Switch Corp.	Woodstock	01	RI/FS	RP	07/10/89	3	93	3	93	0
1	CT	Old Southington Landfill	Southington	01	RI/FS	RP	09/29/87	2	93	4	93	-2
1	CT	Solvents Recovery Service of New England	Southington	01	RA	F	05/21/92			2	93	new
				02	RA	RP	10/29/86	4	94	4	94	0
				03	RI/FS	F	08/12/88	4	93	3	94	-3
1	CT	Yaworski Waste Lagoon	Canterbury	01	RA	RP	04/08/91	3	92	4	93	-5
1	MA	Atlas Tack Corp.	Fairhaven	01	RI/FS	F	09/18/89	1	93	1	94	-4
1	MA	Baird & McGuire	Holbrook	01	RA	F	09/05/89	2	92	2	93	-4
				02	RA	F	06/26/90	3	97	3	97	0
				03	RA	F	09/30/91	2	93	4	94	-6
1	MA	Charles-George Reclamation Trust Landfill	Tyngsborough	03	RA	F	09/28/90	4	93	1	95	-5
1	MA	Fort Devens	Fort Devens	01	RI/FS	FF	05/13/91	3	93	4	94	-5
				02	RI/FS	FF	05/13/91	4	93	4	94	-4
				03	RI/FS	FF	08/31/92			1	95	new
				04	RI/FS	FF	08/31/92			1	95	new
				05	RI/FS	FF	08/31/92			1	95	new
1	MA	Fort Devens - Sudbury Training Annex	Fort Devens	01	RI/FS	FF	05/13/91	1	94	1	95	-4
				02	RI/FS	FF	05/13/91	1	94	3	95	-6
				03	RI/FS	FF	05/13/91	1	94	3	94	-2
1	MA	Industri-Plex (Mark Philips Trust)	Woburn	01	RA	RP	05/18/92			1	94	new
				02	RI/FS	F	05/30/90	1	93	2	94	-5

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RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE	PRESENT COMPLETION SCHEDULE	STATUS
1	MA	Iron Horse Park	Billerica	01	RA	RP	07/15/91	4 95	4 95	0
				03	RI/FS	F	01/31/90	3 93	4 94	-5
1	MA	New Bedford Site	New Bedford	01	FS	F	02/15/85	2 92	2 93	-4
				02	RA	F	12/20/91		1 94	new
1	MA	Nyanza Chemical Waste Dump	Ashland	03	RI/FS	F	05/21/87	4 92	2 93	-2
1	MA	Otis Air National Guard Base/Camp Edwards	Falmouth	01	RI/FS	FF	07/17/91	2 94	2 94	0
				03	RI/FS	FF	07/17/91	3 92	1 94	-6
				04	RI/FS	FF	07/17/91	1 93	1 95	-8
				05	RI/FS	FF	07/17/91	2 93	4 93	-2
				06	RI/FS	FF	07/17/91	2 93	1 95	-7
				07	RI/FS	FF	07/17/91	1 94	2 93	3
				08	RI/FS	FF	07/17/91	3 94	3 95	-4
1	MA	Salem Acres	Salem	01	RI/FS	RP	06/15/87	1 92	2 93	-5
1	MA	Shpack Landfill	Norton/Attleboro	01	RI/FS	RP	09/24/90	3 93	2 95	-7
1	MA	Wells G&H	Woburn	02	RI/FS	RP	09/28/90	4 93	3 94	-3
				03	RI/FS	F	09/28/90	2 93	3 94	-5
1	ME	Brunswick Naval Air Station	Brunswick	03	RI/FS	FF	06/22/90	1 93	4 93	-3
				04	RI/FS	FF	02/22/88	3 92	4 93	-5
				05	RI/FS	FF	06/22/90		1 94	DNE
				06	RI/FS	FF	06/22/90		4 93	DNE
1	ME	Loring Air Force Base	Limestone	01	RI/FS	FF	01/30/91	4 93	4 93	0
				02	RI/FS	FF	01/30/91	4 94	4 94	0
				03	RI/FS	FF	05/09/91	1 94	1 94	0
				04	RI/FS	FF	05/09/91	4 93	4 94	-4
				05	RI/FS	FF	05/09/91	3 94	3 94	0
				07	RI/FS	FF	01/30/91	3 95	3 95	0
				08	RI/FS	FF	01/30/91	1 96	1 96	0
				09	RI/FS	FF	01/30/91	3 96	3 96	0
				10	RI/FS	FF	01/30/91	1 98	1 98	0

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
1	ME	Pinette's Salvage Yard	Washburn	01	RA	F	07/10/90	3	92	4	93	-5
1	NH	Coakley Landfill	North Hampton	02	RI/FS	F	09/27/90	2	93	4	94	-6
1	NH	Fletcher's Paint Works	Milford	01	RI/FS	F	07/29/90	4	93	3	94	-3
1	NH	Keefe Environmental Services	Epping	02	RA	S	10/14/91			4	93	new
1	NH	New Hampshire Plating Co.	Merrimack	01	RI/FS	F	07/14/92			3	94	new
1	NH	Pease Air Force Base	Portsmouth/Newington	01	RI/FS	FF	12/21/90	2	93	2	93	0
				02	RI/FS	FF	12/21/90	2	92	3	93	-5
				03	RI/FS	FF	04/17/91	1	94	1	94	0
				04	RI/FS	FF	04/17/91	2	94	2	94	0
				05	RI/FS	FF	02/25/92			4	94	new
				06	RI/FS	FF	02/25/92			2	95	new
				07	RI/FS	FF	05/21/91	1	95	1	95	0
				08	RI/FS	FF	06/16/92			1	95	new
				09	RI/FS	FF	06/16/92			3	94	new
1	NH	Somersworth Sanitary Landfill	Somersworth	01	RI/FS	RP	04/28/89	4	92	4	93	-4
1	RI	Central Landfill	Johnston	01	RI/FS	RP	04/03/87	4	93	1	94	-1
1	RI	Davis (GSR) Landfill	Smithfield	01	RI/FS	F	09/27/90	3	93	2	94	-3
1	RI	Davis Liquid Waste	Smithfield	01	RA	F	04/27/88	2	93	2	95	-8
1	RI	Davisville Naval Construction Batt Center	North Kingstown	01	RI/FS	FF	03/23/92			1	95	new
				02	RI/FS	FF	03/23/92			3	93	new
				03	RI/FS	FF	03/23/92			2	94	new
1	RI	Davisville Naval Contruction Batt Center	North Kingstown	04	RI/FS	FF	03/23/92			1	94	new
1	RI	Newport Naval Education/Training Center	Newport	01	RI/FS	FF	03/23/92			4	93	new
				03	RI/FS	FF	03/23/92			2	95	new
				04	RI/FS	FF	03/23/92			1	94	new

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RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
1	RI	Peterson/Puritan, Inc.	Lincoln/Cumberland	01	RI/FS	RP	05/29/87	3	93	4	93	-1
1	RI	Picillo Farm	Coventry	02	RI/FS	F	11/09/87	4	93	4	93	0
1	RI	Rose Hill Regional Landfill	South Kingstown	01	RI/FS	F	09/30/90	3	93	3	94	-4
1	RI	Western Sand & Gravel	Burrillville	01	RA	F	09/25/87	4	91	4	91	0
1	VT	BFI Sanitary Landfill (Rockingham)	Rockingham	01	RI/FS	RP	07/24/92			1	94	new
1	VT	Bennington Municipal Sanitary Landfill	Bennington	01	RI/FS	RP	06/28/91	3	93	3	94	-4
1	VT	Burgess Brothers Landfill	Woodford	01	RI/FS	RP	08/27/91	1	94	4	94	-3
1	VT	Old Springfield Landfill	Springfield	01	RA	RP	09/17/92			4	93	new
1	VT	Parker Landfill	Lyndon	01	RI/FS	RP	08/10/90	4	93	1	94	-1
1	VT	Pine Street Canal	Burlington	01	RI/FS	F	06/27/88	3	92	4	93	-5
1	VT	Tansitor Electronics Inc.	Bennington	01	RI/FS	RP	09/12/90	2	93	1	94	-3
2	NJ	American Cyanamid Co.	Bound Brook	04	RI/FS	SE	05/28/88			3	94	DNE
				05	RI/FS	SE	05/28/88			3	95	DNE
2	NJ	Asbestos Dump	Millington	03	RI/FS	F	01/24/91	3	93	2	94	-3
2	NJ	Bog Creek Farm	Howell Township	02	RA	F	09/27/91	2	93	4	93	-2
2	NJ	Bridgeport Rental & Oil Services	Bridgeport	01	RA	F	04/19/88	1	93	4	94	-7
				02	RI/FS	F	09/29/88	3	93	2	95	-7
2	NJ	Brook Industrial Park	Bound Brook	01	RI/FS	F	04/12/89	1	93	3	93	-2
2	NJ	Burnt Fly Bog	Marlboro Township	01	RA	S	12/07/83	1	93	1	94	-4
				03	RI/FS	S	09/30/88	3	93	4	95	-9

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RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
2	NJ	Chemical Insecticide Corp.	Edison Township	01	RA	F	09/28/90	1	93	4	93	-3
				02	RI/FS	F	03/29/85	2	92	3	93	-5
2	NJ	Chemical Leaman Tank Lines, Inc.	Bridgeport	02	RI/FS	F	07/15/85	1	92	4	93	-7
				03	RI/FS	F	03/15/90	1	93	4	93	-3
2	NJ	Chemsol, Inc.	Piscataway	01	RI/FS	F	09/28/90	1	94	3	95	-6
2	NJ	Ciba-Geigy Corp. (TOMS RIVER CHEMICAL)	Toms River	02	RI/FS	F	07/05/89	4	92	4	94	-8
2	NJ	Combe Fill North Landfill	Mount Olive Township	01	RA	S	09/30/88	1	93	2	93	-1
2	NJ	Combe Fill South Landfill	Chester Township	01	RA	S	09/28/90	1	95	4	95	-3
2	NJ	Curcio Scrap Metal, Inc.	Saddle Brook Township	02	RI/FS	RP	04/29/88	2	93	2	94	-4
2	NJ	Denzer & Schafer X-Ray Co.	Bayville	01	RI/FS	S	06/26/87	1	93	1	94	-4
2	NJ	Fair Lawn Well Field	Fair Lawn	01	RI/FS	F	09/30/92			4	95	new
2	NJ	Federal Aviation Administration Technical Center	Atlantic County	01	RA	FF	08/19/92			1	95	new
				04	RI/FS	FF	06/01/87	3	92	4	93	-5
				05	RI/FS	FF	06/01/87			3	93	DNE
				07	RI/FS	FF	06/01/87	1	93	4	93	-3
				08	RI/FS	FF	06/01/87	1	93	4	93	-3
				09	RI/FS	FF	06/01/87	2	93	2	95	-8
				10	RI/FS	FF	06/01/87	4	93	4	94	-4
2	NJ	Florence Land Recontouring Landfill	Florence Township	01	RA	S	09/29/89	1	94	2	94	-1
2	NJ	Fort Dix (Landfill Site)	Pemberton Township	01	RA	FF	08/06/92			2	94	new
				02	RI/FS	FF	06/19/91	1	93	2	94	-5

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RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE	PRESENT COMPLETION SCHEDULE	STATUS
2	NJ	Fried Industries	East Brunswick Township	01	RI/FS	FE	06/28/85	2 93	4 93	-2
2	NJ	GEMS Landfill	Gloucester Township	01	RA	PS	06/05/89	3 93	1 95	-6
2	NJ	Glen Ridge Radium Site	Glen Ridge	01	RA	F	09/15/89	4 98	4 98	0
				02	RI/FS	F	03/30/90	1 93	1 94	-4
				03	RA	F	09/30/92		4 98	new
2	NJ	Goose Farm	Plumstead Township	01	RA	RP	08/27/92		4 99	new
2	NJ	Helen Kramer Landfill	Mantua Township	01	RA	F	09/23/88	4 93	2 94	-2
2	NJ	Hercules, Inc. (Gibbstown Plant)	Gibbstown	02	RI/FS	PS	07/02/86	3 93	1 95	-6
2	NJ	Higgins Disposal	Kingston	01	RI/FS	F	05/17/90	2 93	2 95	-8
2	NJ	Higgins Farm	Franklin Township	02	RA	F	09/29/90	1 93	1 94	-4
2	NJ	Hopkins Farm	Plumstead Township	01	RI/FS	PS	02/03/87	4 92	2 94	-6
2	NJ	Imperial Oil Co., Inc./Champion Chemicals	Morganville	03	FS	S	09/28/84		3 94	DNE
2	NJ	Jackson Township Landfill	Jackson Township	01	RI/FS	PS	08/21/88	1 93	1 94	-4
2	NJ	Kauffman & Minteer, Inc.	Jobstown	01	RI/FS	F	04/11/89	4 93	3 93	1
2	NJ	Lang Property	Pemberton Township	01	RA	F	09/30/92		1 96	new
2	NJ	Lipari Landfill	Pitman	02	RA	F	09/30/88	4 99	4 99	0
				03	RA	F	09/29/92		1 97	new

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RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE	PRESENT COMPLETION SCHEDULE	STATUS
2	NJ	Lodi Municipal Well	Lodi	01	RI/FS	F	06/19/87	3 92	3 93	-4
2	NJ	Lone Pine Landfill	Freehold Township	01	RA	RP	10/13/89	2 94	3 94	-1
2	NJ	Maywood Chemical Co.	Maywood/Rochelle Park	01	RI/FS	RP	09/21/87	1 93	1 94	-4
				02	RI/FS	FF	07/21/90	4 94	4 94	0
2	NJ	Metaltec/Aerosystems	Franklin Borough	01	RA	F	03/29/91	1 93	1 95	-8
2	NJ	Monitor Devices/Intercircuits, Inc.	Wall Township	01	RI/FS	F	03/12/92		2 95	new
2	NJ	Monroe Township Landfill	Monroe Township	02	RI/FS	PS	12/01/86	1 93	1 94	-4
2	NJ	Montclair/West Orange Radium Site	Montclair/West Orange	01	RA	F	09/15/89	4 98	4 98	0
				02	RI/FS	F	03/30/90	1 93	1 94	-4
				03	RA	F	09/30/92		4 98	new
2	NJ	NL Industries	Pedricktown	01	RI/FS	RP	04/25/86	2 93	3 93	-1
2	NJ	Naval Air Engineering Center	Lakehurst	02	RA	FF	02/04/91		2 93	DNE
				04	RA	FF	09/30/91	3 95	1 97	-6
				05	RA	FF	03/16/92		3 96	new
				08	RI/FS	FF	09/25/89		2 93	DNE
				09	RI/FS	FF	09/25/89		4 93	DNE
2	NJ	Naval Weapons Station	Colts Neck	01	RI/FS	FF	09/27/90	2 93	2 94	-4
				02	RI/FS	FF	09/27/90	2 94	4 95	-6
2	NJ	Radiation Technology Inc.	Rockaway Township	01	RI/FS	PS	07/24/86	1 93	2 93	-1
2	NJ	Renora, Inc.	Edison Township	02	RI/FS	RP	08/25/90	2 93	1 94	-3
2	NJ	Rockaway Borough Well Field	Rockaway Township	03	RI/FS	RP	09/30/92		1 95	new
2	NJ	Rockaway Township Wells	Rockaway	01	RI/FS	PS	12/16/86		3 93	DNE

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
2	NJ	Roebling Steel Co.	Florence	03	RI/FS	F	09/29/92			3	95	new
2	NJ	Sayreville Landfill	Sayreville	02	RI/FS	PS	11/26/91			2	94	new
2	NJ	Scientific Chemical Processing	Carlstadt	02	RI/FS	RP	12/19/88	1	93	3	94	-6
2	NJ	Sheild Alloy Corp.	Newfield Borough	02	RI/FS	PS	10/05/88	1	93	3	94	-6
2	NJ	Swope Oil & Chemical Co.	Pennsauken	01	RA	RP	09/07/88	2	96	2	96	0
2	NJ	Syncon Resins	South Kearny	01	RA	S	05/23/89	1	93	1	94	-4
2	NJ	Tabernacle Drum Dump	Tabernacle Township	01	RA	RP	09/21/92			3	94	new
2	NJ	U.S. Radium Corp.	Orange	01	RI/FS	F	09/28/84	1	93	3	93	-2
				02	RI/FS	F	09/30/89			2	94	DNE
2	NJ	Universal Oil Products (Chemical Division)	East Rutherford	01	RI/FS	PS	05/28/86	4	92	1	94	-5
2	NJ	WR Grace & Co. Inc./Wayne Interim Storage Site	Wayne Township	01	RI/FS	FF	07/21/90	4	94	4	94	0
2	NJ	Waldick Aerospace Devices, Inc.	Wall Township	01	RA	F	09/30/91	2	93	1	95	-7
2	NJ	White Chemical Corp	Newark	01	RA	F	09/27/91	1	93	3	93	-2
2	NJ	Wilson Farm	Plumstead Township	01	RI/FS	PS	02/03/87	4	92	3	93	-3
2	NY	American Thermostat Co.	South Cairo	02	RA	F	08/07/92			3	94	new
2	NY	Anchor Chemicals	Hicksville	01	RI/FS	RP	06/02/89	2	93	1	94	-3
2	NY	Batavia Landfill	Batavia	01	RI/FS	RP	08/09/84	4	92	4	93	-4

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
2	NY	Brewster Well Field	Putnam County	01	RA	F	09/23/87	4	91	4	93	-8
2	NY	Brookhaven National Laboratory (USDOE)	Upton	04	RI/FS	FF	11/19/91			1	96	new
2	NY	C & J Disposal Leasing Co. Dump	Hamilton	01	RA	RP	08/07/92			2	93	new
2	NY	Carrol & Dubies Sewage Disposal	Port Jervis	01	RI/FS	RP	02/08/90	3	93	4	93	-1
2	NY	Circuitron Corp.	East Farmingdale	02	RI/FS	F	01/27/92			2	94	new
2	NY	Conklin Dumps	Conklin	01	RA	PS	09/23/92			1	95	new
2	NY	Cortese Landfill	Vil. of Narrowsburg	01	RI/FS	RP	09/28/90	1	93	4	94	-7
2	NY	FMC Corp. (Dublin Road Landfill)	Town of Shelby	01	RI/FS	PS	02/09/88	1	93	2	93	-1
2	NY	Facet Enterprises, Inc.	Elmira	01	RI/FS	RP	05/22/86	3	92	3	92	0
2	NY	Forest Glen Mobile Home Subdivision	Niagara Falls	02	RI/FS	F	09/30/92			2	94	new
2	NY	Genzale Plating Co.	Franklin Square	02	RI/FS	F	09/25/91	2	93	3	94	-5
2	NY	Goldisc Recordings, Inc.	Holbrook	01	RI/FS	RP	06/27/91	2	93	1	95	-7
2	NY	Griffiss Air Force Base	Rome	01	RI/FS	FF	03/29/90	2	93	2	94	-4
				02	RI/FS	FF	03/29/90	2	93	2	94	-4
				03	RI/FS	FF	03/29/90	4	93	2	95	-6
				04	RI/FS	FF	03/29/90	2	94	2	95	-4
				05	RI/FS	FF	03/29/90	4	94	2	96	-6
				06	RI/FS	FF	03/29/90	2	95	2	96	-4
				07	RI/FS	FF	03/29/90	4	95	2	97	-6
2	NY	Hooker (Hyde Park)	Niagara Falls	01	RA	RP	08/15/87	1	93	4	94	-7

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RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE	PRESENT COMPLETION SCHEDULE	STATUS
2	NY	Hooker (South Area)	Niagara Falls	01	RA	RP	11/02/90	1 97	4 96	1
				01	RA	RP	11/02/90	4 95	4 96	-4
2	NY	Hooker Chemical/Ruco Polymer Corp.	Hicksville	01	RI/FS	RP	09/21/88	4 92	3 93	-3
				02	RA	RP	04/28/92		2 93	new
2	NY	Hudson River PCBs	Hudson River	02	RI/FS	F	07/25/90	3 93	3 94	-4
2	NY	Islip Municipal Sanitary Landfill	Islip	01	RA	PS	03/15/92		4 94	new
2	NY	Johnstown City Landfill	Town of Johnstown	01	RI/FS	PS	10/03/88	1 93	2 93	-1
2	NY	Jones Chemicals, Inc.	Caledonia	01	RI/FS	RP	03/29/91	4 93	1 95	-5
2	NY	Jones Sanitation	Hyde Park	01	RI/FS	RP	03/26/91	4 93	4 94	-4
2	NY	Katonah Municipal Well	Bedford	01	RA	RP	03/14/90	4 92	4 92	0
2	NY	Kenmark Textile Corp.	Farmingdale	01	RI/FS	RP	07/31/91	4 93	4 94	-4
2	NY	Kentucky Avenue Well Field	Horseheads	01	RA	F	09/28/90	1 93	4 93	-3
				03	RI/FS	RP	08/08/91	2 93	1 95	-7
2	NY	Li Tungsten Corp.	Glen Cove	01	RI/FS	F	08/26/92		4 94	new
2	NY	Liberty Industrial Finishing	Farmingdale	01	RI/FS	F	09/28/90	2 93	4 93	-2
2	NY	Love Canal	Niagara Falls	01	RA	S	09/26/91		3 93	DNE
				01	RA	S	09/26/91		3 93	DNE
				07	RA	S	02/09/87	4 92	4 94	-8
				08	RA	S	06/26/87	4 91	1 94	-9
2	NY	Malta Rocket Fuel Area	Malta	01	RI/FS	RP	11/10/89	3 93	3 94	-4
2	NY	Marathon Battery Corp.	Cold Springs	03	RA	F	09/27/91	4 94	3 93	5
				03	RA	F	06/28/91	4 92	3 93	-3
				03	RA	RP	08/30/89	4 91	3 93	-7

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
2	NY	Niagara County Refuse	Wheatfield	01	RI/FS	RP	03/30/89	1	93	2	93	-1
2	NY	Niagra Mohawk Power Corp. (Saratoga Springs Plant)	Saratoga Springs	01	RI/FS	RP	09/27/89	2	93	4	94	-6
2	NY	North Sea Municipal Landfill	North Sea	01	RA	RP	09/21/92			1	94	new
				02	RI/FS	RP	07/27/89	3	92	4	92	-1
2	NY	Old Bethpage Landfill	Oyster Bay	01	RA	PS	11/13/90	1	93	1	93	0
2	NY	Olean Well Field	Olean	01	RA	RP	01/27/88	2	92	4	93	-6
				02	RI/FS	RP	06/25/91	4	93	3	94	-3
2	NY	Plattsburg Air Force Base	Plattsburgh	01	RA	FF	09/30/92			4	93	new
				02	RI/FS	FF	04/23/91			3	94	DNE
				03	RA	FF	09/30/92			4	95	new
				04	RI/FS	FF	04/23/91			2	93	DNE
				05	RI/FS	FF	04/23/91			3	94	DNE
				06	RI/FS	FF	06/04/92			2	94	new
2	NY	Pollution Abatement Services	Oswego	03	RI/FS	RP	09/28/90	1	93	4	93	-3
2	NY	Preferred Plating Corp.	Farmingdale	01	RA	F	01/31/92			4	95	new
				03	RI/FS	RP	09/27/90			3	93	DNE
2	NY	Radium Chemical	New York City	01	RA	F	06/29/90	4	92	3	93	-3
2	NY	Richardson Hill Road Landfll/Pond	Sidney Center	01	RI/FS	RP	07/22/87	1	93	1	94	-4
2	NY	Rosen Brothers Scrap Yard/Dump	Cortland	01	RI/FS	RP	01/04/90	1	93	3	94	-6
2	NY	SMS Instruments, Inc.	Deer Park	01	RA	F	09/30/92			2	94	new
				01	RA	F	05/17/91	1	93	2	94	-5
				02	RI/FS	F	04/26/90	1	93	3	93	-2
2	NY	Sarney Farm	Amenia	01	RA	F	03/31/92			4	93	new

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
2	NY	Sealand Restoration, Inc.	Lisbon	02	RI/FS	F	06/29/90	4	93	1	95	-5
2	NY	Seneca Army Depot	Romulus	01	RI/FS	FF	03/19/90	4	93	4	94	-4
				02	RI/FS	FF	04/29/91	2	94	4	94	-2
2	NY	Sidney Landfill	Sidney	01	RI/FS	F	09/19/89	1	93	3	94	-6
2	NY	Sinclair Refinery	Wellsville	01	RA	RP	12/06/91			2	94	new
				02	RA	RP	05/29/92			4	93	new
2	NY	Syosset Landfill	Oyster Bay	02	RI/FS	RP	11/15/90	1	93	4	94	-7
2	NY	Tri-Cities Barrel Co., Inc.	Port Crane	01	RI/FS	RP*	05/14/92	4	93	1	95	-5
2	NY	Tronic Plating Co., Inc.	Farmingdale	01	RI/FS	RP	06/07/88	1	93	3	93	-2
2	NY	Vestal Water Supply Well 1-1	Vestal	01	RA	F	09/30/87	3	92	3	93	-4
2	NY	Volney Municipal Landfill	Town of Volney	02	RI/FS	RP	09/28/90	1	93	4	95	-11
2	NY	York Oil Co.	Moira	02	RI/FS	RP	05/21/92			4	95	new
2	PR	Barceloneta Landfill	Florida Afuera	01	RI/FS	RP	09/28/90	1	93	3	94	-6
2	PR	GE Wiring Devices	Juana Diaz	01	RA	RP	05/30/91	1	93	2	93	-1
2	PR	Juncos Landfill	Juncos	02	RI/FS	RP	11/30/90	1	93	3	93	-2
2	PR	Naval Security Group Activity	Sabana Seca	01	RI/FS	FF	03/19/92			4	95	new
2	PR	RCA Del Caribe	Barceloneta	01	RI/FS	RP	03/31/88	4	93	1	94	-1
2	PR	Upjohn Facility	Barceloneta	01	RA	RP	02/11/92			1	94	new
				01	RA	RP	04/19/89	1	94	4	95	-7
2	PR	Vega Alta Public Supply Wells	Vega Alta	01	RA	RP	09/18/92			4	94	new
				02	RI/FS	RP	10/23/90	1	93	3	94	-6

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2	VI	Tutu Wellfield	Tutu	01	RI/FS	RP	02/19/92			4	94	new
3	DE	Army Creek Landfill (Delaware Sand & Gravel Llangollen)	New Castle County	01	RA	MR	09/28/90	1	93	4	95	-11
				02	RA	MR	07/23/91	1	95	2	94	3
3	DE	Dover Air Force Base	Dover	01	RA	FF	03/02/92			4	92	new
				02	RI/FS	FF	06/29/90	1	92	3	92	-2
				03	RI/FS	FF	06/29/90	4	92	3	93	-3
3	DE	Dover Gas Light Co.	Dover	01	RI/FS	RP	07/06/90	2	93	3	93	-1
3	DE	E.I. Du Pont de Nemours & Co.(Newport Pigment plant LdF	Newport	01	RI/FS	RP	08/12/88	4	92	2	93	-2
3	DE	Halby Chemical Co.	New Castle	02	RI/FS	F	12/20/91			1	95	new
3	DE	Kent County Landfill (Houston)	Houston	01	RI/FS	RP	09/27/91	3	93	1	95	-6
3	DE	Koppers Co., Inc. (Newport Plant)	Newport	01	RI/FS	RP	09/26/91	4	93	4	94	-4
3	DE	Standard Chlorine of Delaware, Inc.	Delaware City	01	RI/FS	PS	11/30/87	2	93	1	94	-3
3	DE	Sussex County Landfill No. 5	Laurel	01	RI/FS	RP	03/29/91	2	93	2	94	-4
3	DE	Tyler Refrigeration Pit	Smyrna	01	RI/FS	RP	03/29/91	2	93	1	94	-3
3	MD	Aberdeen Proving Ground (Edgewood Area)	Edgewood	01	RI/FS	FF	03/27/90	3	92	3	93	-4
				02	RI/FS	FF	03/27/90	1	96	1	96	0
				03	RI/FS	FF	03/27/90	1	93	1	94	-4
				04	RI/FS	FF	03/27/90	1	93	3	94	-6
				06	RI/FS	FF	03/27/90	3	93	2	94	-3
				07	RI/FS	FF	03/27/90	1	94	1	94	0
				08	RI/FS	FF	03/27/90	4	92	2	94	-6
				09	RI/FS	FF	03/27/90	3	93	1	95	-6
				10	RI/FS	FF	03/27/90	3	93	3	94	-4
				11	RI/FS	FF	12/05/90	1	94	1	94	0

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3	MD	Aberdeen Proving Grounds (Michaelsville Landfill)	Aberdeen	02	RI/FS	FF	03/27/90	1	94	1	94	0
				03	RI/FS	FF	03/27/90	2	93	2	93	0
				05	RI/FS	FF	03/27/90	1	93	1	94	-4
				06	RI/FS	FF	08/30/91	4	93	2	94	-2
3	MD	Annearundel County Landfill	Glen Burnie	01	RI/FS	PS	09/01/90	1	93	1	94	-4
3	MD	Bush Valley Landfill	Abingdon	01	RI/FS	RP*	06/15/90	1	93	1	94	-4
3	MD	Kane & Lombard Street Drums	Baltimore	02	RI/FS	S	12/28/88	1	93	2	95	-9
3	MD	Limestone Road	Cumberland	02	RI/FS	RP	02/28/90	4	93	2	94	-2
3	MD	Southern Maryland Wood Treating	Hollywood	02	RI/FS	F	05/29/92			3	93	new
3	MD	Woodlawn County Landfill	Woodlawn	01	RI/FS	RP	12/28/88	2	93	4	93	-2
3	PA	AIW Frank/Mid-County Mustang	Exton	01	RI/FS	F	09/14/90	4	93	1	94	-1
3	PA	AMP, Inc. (Glen Rock Facility)	Glen Rock	01	RI/FS	RP	03/01/89	4	94	4	94	0
3	PA	Aladdin Plating, Inc.	Scott Township	02	RI/FS	F	05/16/90	2	92	1	93	-3
3	PA	Ambler Asbestos Piles	Ambler	01	RA	RP	06/08/92			2	93	new
				02	RA	RP	01/09/92			4	93	new
3	PA	Bell Landfill	Terry Township	01	RI/FS	RP	02/11/91	1	93	3	93	-2
3	PA	Bendix Flight Systems Division	Bridgewater Township	02	RA	RP	06/15/92			4	93	new
3	PA	Berkley Products Co. Dump	Denver	01	RI/FS	F*	03/12/90	1	93	4	93	-3
3	PA	Berks Landfill	Spring Township	01	RI/FS	RP	06/26/91	2	93	2	94	-4
3	PA	Berks Sand Pit	Longswamp Township	03	RA	F	08/16/91			4	93	DNE

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3	PA	Blosenski Landfill	West Caln Township	02	RA	RP	09/13/91			2	93	DNE
3	PA	Boarhead Farms	Bridgeton Township	01	RI/FS	F	12/05/89	4	93	1	94	-1
3	PA	Brodhead Creek	Stroudsburg	02	RI/FS	RP	05/29/92			2	94	new
3	PA	Brown's Battery Breaking	Shoemakersville	01	RA	F	12/27/91			2	93	new
3	PA	Butler Mine Tunnel	Pittston	01	RI/FS	RP	03/30/87	4	92	2	93	-2
3	PA	Butz Landfill	Stroudsburg	02	RA	F	09/30/91			3	93	DNE
3	PA	Centre County Kepone	State College Boro	01	RI/FS	RP	11/07/88	2	93	1	94	-3
3	PA	Croydon TCE	Croydon	02	RA	F	09/30/91	2	93	3	93	-1
3	PA	Douglassville Disposal	Douglassville	02	RA	F	06/08/89	3	93	3	93	0
				03	RA	RP	10/04/91			2	93	new
3	PA	Drake Chemical	Lock Haven	03	RA	F	09/30/91			2	95	DNE
3	PA	Dublin TCE Site	Dublin Borough	02	RI/FS	RP	08/15/91	1	93	2	94	-5
3	PA	Eastern Diversified Metals	Hometown	01	RI	RP	10/19/87			3	93	DNE
				03	FS	RP	09/30/91			3	93	DNE
3	PA	Elizabethtown Landfill	Elizabethtown	01	RI/FS	RP	09/28/90	1	93	4	94	-7
3	PA	Fischer & Porter Co.	Warminster	02	RI/FS	F	02/20/92			1	94	new
3	PA	Havertown PCP	Haverford	01	RA	F	08/03/90	1	92	2	93	-5
				03	RI/FS	F	08/15/91	2	93	2	93	0
3	PA	Hebelka Auto Salvage Yard	Weisenberg Township	01	RA	F	09/29/92			1	94	new

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3	PA	Henderson Road Site	Upper Merion Township	01	RA	RP	09/12/92		1 95	new
				02	RA	RP	03/15/91	2 94	2 94	0
3	PA	Hunterstown Road	Straban Township	01	RI/FS	RP	03/10/87	1 93	3 93	-2
3	PA	Jack's Creek/Sitkin Smelting and Refining Inc.	Maitland	01	RI/FS	F	08/28/90	3 93	4 93	-1
3	PA	Lackawanna Refuse	Old Forge Borough	01	RA	F	06/02/87	4 92	3 93	-3
3	PA	Letterkenny Army Depot (Property Disposal Office Area)	Franklin County	02	RI/FS	FF	02/03/89	4 93	2 94	-2
3	PA	Letterkenny Army Depot (Southeast Area)	Chambersburg	02	RI/FS	FF	02/03/89	2 94	2 94	0
				03	RI/FS	FF	02/03/89		2 94	DNE
3	PA	Malvern TCE	Malvern	01	RI/FS	RP	12/16/88	1 93	1 94	-4
3	PA	Metal Banks	Philadelphia	01	RI/FS	RP	05/29/91	3 93	4 93	-1
3	PA	Middletown Air Field	Middletown	03	RI/FS	F	06/21/91		3 95	DNE
3	PA	Mill Creek Dump	Erie	01	RA	F	06/30/89	4 92	1 93	-1
				02	RA	RP	05/04/92		1 94	new
3	PA	Moyers Landfill	Eagleville	01	RA	F	09/29/88	3 93	1 95	-6
3	PA	Naval Air Development Center (8 waste centers)	Warminster Township	01	RI/FS	FF	09/20/90	3 92	3 93	-4
				02	RI/FS	FF	09/20/90		1 94	DNE
3	PA	North Penn-Area 1(Gentle Cleaners/Granite Knitting Mill	Souderton	01	RI/FS	F	06/30/88	4 93	4 93	0
3	PA	North Penn-Area 12	Souderton	01	RI/FS	F	12/23/91		1 94	new

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3	PA	North Penn-Area 6 (J.W. Rex/Allied Paint/Keystone hydra	Lansdale	01	RI/FS	F	06/30/88	1	95	1	95	0
3	PA	Novak Sanitary Landfill	South Whitehall Twp	01	RI/FS	RP	12/31/88	1	93	2	93	-1
3	PA	Occidental Chemical Corp./Firestone Co.	Lower Pottsgrove Twp.	01	RI/FS	RP	12/28/89	1	93	3	93	-2
3	PA	Ohio River Park	Neville Island	01	RI/FS	RP	10/16/91			1	94	new
				02	RI/FS	RP	02/21/92			2	93	new
3	PA	Palmerton Zinc Pile	Palmerton	01	RA	RP	07/31/88	4	99	4	99	0
				02	RI/FS	RP	12/13/91			1	94	new
				03	RI/FS	RP	02/24/92			2	93	new
				04	RI/FS	F	08/12/88	1	93	1	94	-4
3	PA	Publicker Industries Inc.	Philadelphia	02	RA	F	09/23/92			3	93	new
				02	RI/FS	F	09/21/89	2	93	2	93	0
3	PA	Raymark	Hatboro	02	RA	F	09/25/92			3	93	new
3	PA	Recticon/Allied Steel Corp.	East Coventry Twp.	01	RI/FS	RP	03/29/90	1	93	3	93	-2
3	PA	Resin Disposal	Jefferson Borough	02	RI/FS	RP	06/24/92			4	93	new
3	PA	Revere Chemical Co.	Nockamixon Township	01	RI/FS	RP	12/16/88	2	93	2	93	0
3	PA	River Road Landfill (Waste Management, Inc.)	Hermitage	01	RI/FS	RP	05/05/90	1	93	2	94	-5
3	PA	Rodale Manufacturing Co., Inc.	Emmaus Borough	01	RI/FS	RP	09/22/92			1	95	new

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3	PA	Salford Quarry	Salford Township	01	RI/FS	RP	03/22/88	4 93	4 94	-4
3	PA	Shriver's Corner	Straban Township	01	RI/FS	RP	03/10/87	1 93	3 93	-2
3	PA	Stanley Kessler	King of Prussia	01	RI/FS	RP	01/07/91	3 93	4 93	-1
3	PA	Strasburg Landfill	Newlin Township	04	RI/FS	F	01/14/92		3 93	new
3	PA	Tobyhanna Army Depot	Toby Hanna	01	RI/FS	FF	09/27/90	1 93	2 93	-1
3	PA	Tysons Dump	Upper Merion Township	01	RA	RP	06/03/88	1 93	1 95	-8
3	PA	Walsh Landfill	Honeybrook Township	02	RA	F	07/08/92		2 94	new
				02	RI/FS	F	05/01/90	3 92	4 93	-5
				04	RA	F	03/21/91		1 94	DNE
3	PA	Westinghouse Elevator Co. (Sharon Plant)	Sharon	01	RI/FS	PS	09/20/88	2 92	1 93	-3
				02	RI/FS	PS	09/20/88		1 94	DNE
3	PA	Westinghouse Elevator Co. Plant	Gettysburg	02	RI/FS	RP	03/20/92		1 94	new
3	PA	William Dick Lagoons	West Caln Township	02	FS	RP	02/05/92		2 93	new
3	PA	York County Solid Waste and Refuse Authority Landfill	Hopewell Township	01	RI/FS	PS	11/30/87	2 92	2 93	-4
3	VA	Atlantic Wood Industries, Inc.	Portsmouth	01	RI/FS	RP	07/23/87	1 93	3 93	-2
				02	RI/FS	RP	07/23/87	1 93	1 94	-4
3	VA	Avtex Fibers, Inc.	Front Royal	03	RA	F	03/04/91	4 92	2 93	-2
				04	RA	F	07/22/91	4 94	4 94	0
				06	RI/FS	F	09/27/90		3 94	DNE
3	VA	Buckingham County Landfill	Buckingham	01	RI/FS	RP	01/31/91	2 93	3 93	-1

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RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
3	VA	C&R Battery Co., Inc.	Chesterfield County	01	RA	RP	04/28/92			4	93	new
3	VA	Defense General Supply Center	Chesterfield County	02	RI/FS	FF	09/21/90	1	92	2	94	-9
				03	RI/FS	FF	09/21/90	4	93	4	93	0
				04	RI/FS	FF	09/21/90			3	94	DNE
				06	RI/FS	FF	10/11/91			2	94	new
				07	RI/FS	FF	10/11/91			3	94	new
				08	RI/FS	FF	10/11/91			4	94	new
				09	RI/FS	FF	10/11/91			3	93	new
3	VA	Greenwood Chemical Co.	Newton	03	RA	F	09/30/91			2	93	DNE
				04	RI/FS	F	06/11/91			2	94	DNE
3	VA	H & H Inc., Burn Pit	Farrington	01	RI/FS	F	06/30/88	4	92	3	93	-3
3	VA	L.A. Clarke & Son	Spotsylvania County	01	RA	RP	09/08/89	1	92	2	93	-5
				02	RA	RP	08/17/90			2	93	DNE
				05	RI/FS	RP	09/06/89			4	93	DNE
3	VA	Rentokil, Inc. (Virginia Wood Preservation Division)	Richmond	01	RI/FS	RP	12/31/87	3	92	2	93	-3
3	VA	Rinehart Tire Fire Dump	Frederick County	01	RA	F	09/29/89	4	92	1	93	-1
3	VA	Saltville Waste Disposal Ponds	Saltville	03	RI/FS	RP	09/15/88	3	93	3	93	0
				04	RI/FS	RP	09/15/88			1	94	DNE
3	WV	Fike Chemical	Nitro	01	RA	F	01/11/89	3	92	2	93	-3
3	WV	Follansbee Site	Follansbee	01	RI/FS	RP	09/27/90	1	97	1	97	0
3	WV	Ordnance Works Disposal Areas	Morgantown	02	RI/FS	RP	06/04/90	1	93	1	95	-8
3	WV	West Virginia Ordnance	Point Pleasant	02	RA	FF	06/24/91			2	93	DNE
				03	RA	FF	06/09/92			2	93	new

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RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE	PRESENT COMPLETION SCHEDULE	STATUS
4	AL	Alabama Army Ammunition Plant	Childersburg	02	RI/FS	FF	03/15/90		4 95	DNE
				03	RI/FS	FF	11/30/90	4 92	3 93	-3
4	AL	Anniston Army Depot (Southeast Industrial Area)	Anniston	01	RA	FF	05/04/92		4 94	new
				02	RI/FS	FF	12/12/90		3 93	DNE
4	AL	Ciba-Geigy Corp. (McIntosh Plant)	McIntosh	01	RA	RP	09/28/89	3 93	3 96	-12
				03	RI/FS	RP	03/31/92	3 93	1 94	-2
				04	RI/FS	RP	12/24/91		3 92	new
4	AL	Interstate Lead Co. (ILCO)	Leeds	02	RI/FS	F	09/18/89	2 93	2 96	-12
4	AL	Olin Corp. (McIntosh Plant)	McIntosh	01	RI/FS	RP	05/08/90	2 93	2 93	0
4	AL	Perdido Ground Water Contamination	Perdido	01	RA	RP	03/19/92		2 93	new
4	AL	Redwing Carriers, Inc. (Saraland)	Saraland	01	RI/FS	RP	07/02/90	1 93	4 92	1
4	AL	Stauffer Chemical Co. (Clemoyne Plant)	Axis	02	RI/FS	RP	01/05/90	4 94	4 94	0
				03	RI/FS	RP	12/19/90	3 93	3 93	0
4	AL	Stauffer Chemical Co. (Cold Creek Plant)	Bucks	02	RI/FS	RP	01/05/90	4 94	4 94	0
				03	RI/FS	RP	12/19/90	3 93	3 93	0
4	AL	T.H. Agriculture & Nutrition Co. (Montgomery Plant)	Montgomery	01	RI/FS	RP	03/26/91	3 93	3 93	0
4	FL	Agrico Chemical Co.	Pensacola	02	RI/FS	RP	01/31/92		3 93	new
4	FL	Airco Plating Co.	Miami	01	RI/FS	RP	11/14/90	3 93	3 93	0
4	FL	American Creosote Works, Inc. (Pensacola Plant)	Pensacola	02	RI/FS	EP	11/28/89	2 92	2 93	-4
4	FL	Anaconda Aluminum Co./Milgo Electronics	Miami	01	RI/FS	RP	08/05/92		2 96	new
				02	RI/FS	RP	08/05/92		2 96	new
				03	RI/FS	RP	08/05/92		2 96	new

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RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
4	FL	Anodyne, Inc.	North Miami Beach	01	RI/FS	RP	03/26/90	4	92	2	93	-2
4	FL	B&B Chemical Co., Inc.	Hialeah	01	RI/FS	F	09/13/89	3	92	2	94	-7
4	FL	BMI Textron	Lake Park	01	RI/FS	RP	06/30/92			1	95	new
4	FL	Beulah Landfill	Pensacola	01	RI/FS	RP	09/16/91	3	93	3	93	0
4	FL	Cecil Field Naval Air Station	Jacksonville	01	RI/FS	FF	12/12/89			1	95	DNE
				02	RI/FS	FF	10/22/90	3	93	3	94	-4
				03	RI/FS	FF	10/22/90	3	93	1	94	-2
				04	RI/FS	FF	02/18/92	1	94	1	95	-4
				05	RI/FS	FF	02/18/92			1	95	new
				06	RI/FS	FF	02/18/92			1	95	new
				07	RI/FS	FF	10/22/90			4	93	DNE
4	FL	Chemform, Inc.	Pompano Beach	01	RI/FS	RP	10/19/89	4	92	4	92	0
				02	RI/FS	RP	04/07/92			1	95	new
4	FL	City Industries, Inc.	Orlando	01	RA	MR	09/28/92			4	94	new
4	FL	Davie Landfill	Davie	02	RI/FS	RP	03/03/92			2	94	new
4	FL	Florida Steel Corp.	Indiantown	01	RI/FS	EP	08/13/90	3	92	4	93	-5
4	FL	Harris Corp. (Palm Bay Plant/General Development Utili)	Palm Bay	01	RA	PS	06/28/90	3	95	3	95	0
				02	RI/FS	RP	01/23/92			4	94	new
				02	RI/FS	PS	02/07/89	1	93	4	94	-7
4	FL	Helena Chemical Co.	Tampa	01	RI/FS	RP	09/02/92			1	95	new
4	FL	Hipps Road Landfill	Duval County	01	RA	RP	01/15/92			3	93	new
4	FL	Hollingsworth Solderless Terminal	Fort Lauderdale	01	RA	F	12/10/87	1	93	3	93	-2

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RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
4	FL	Homestead Air Force Base	Homestead	01	RI/FS	FF	10/01/90			3	95	DNE
				02	RI/FS	FF	10/01/90	2	92	2	93	-4
				03	RI/FS	FF	10/01/90	2	92	3	93	-5
				04	RI/FS	FF	10/01/90	3	93	4	93	-1
				05	RI/FS	FF	10/01/90	4	93	4	93	0
				06	RI/FS	FF	10/01/90	4	93	1	94	-1
				07	RI/FS	FF	10/01/90	1	94	2	94	-1
				08	RI/FS	FF	10/01/90	2	94	4	94	-2
4	FL	Jacksonville Naval Air Station	Jacksonville	01	RI/FS	FF	10/08/90			4	95	DNE
				02	RI/FS	FF	07/01/92	4	93	4	95	-8
4	FL	Miami Drum Services (Part of Biscayne Aquifer)	Miami	01	RA	F	09/30/88	3	93	3	93	0
4	FL	Northwest 58th Street Landfill (Part of Biscayne Aquife	Hialeah	01	RA	RP	03/22/90	1	93	4	95	-11
4	FL	Peak Oil Co./Bay Drum Co.	Tampa	01	RI/FS	RP	02/10/89	1	93	2	93	-1
				02	RI/FS	RP	03/01/88			2	93	DNE
				03	RI/FS	EP	02/05/88			2	93	DNE
				04	RI/FS	EP	02/05/88			3	93	DNE
4	FL	Pensacola Naval Air Station	Pensacola	01	RI/FS	FF	11/01/90			1	94	DNE
				02	RI/FS	FF	10/15/90	1	94	1	94	0
				03	RI/FS	FF	10/15/90	1	94	1	94	0
				04	RI/FS	FF	10/15/90	1	94	1	94	0
				05	RI/FS	FF	10/15/90	1	94	1	94	0
				06	RI/FS	FF	10/15/90	1	94	4	95	-7
				07	RI/FS	FF	10/15/90	4	95	4	95	0
				08	RI/FS	FF	10/15/90	4	95	4	95	0
				09	RI/FS	FF	10/15/90	4	95	4	95	0
				10	RI/FS	FF	06/24/91	4	95	2	94	6
				11	RI/FS	FF	10/01/91	2	94	2	95	-4
				12	RI/FS	FF	10/01/91			3	95	new
				13	RI/FS	FF	10/01/91			3	95	new
				14	RI/FS	FF	10/01/91			3	95	new

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE	PRESENT COMPLETION SCHEDULE	STATUS
4	FL	Pepper Steel & Alloys, Inc.	Medley	01	RA	RP	03/26/87	4 92	4 93	-4
4	FL	Petroleum Products Corp.	Pembroke Park	02	RI/FS	F	09/15/89	2 92	2 95	-12
4	FL	Pickettville Road Landfill	Jacksonville	01	RA	RP	04/23/92		2 93	new
4	FL	Piper Aircraft/Vero Beach Water & Sewer	Vero Beach	01	RI/FS	EP	04/29/92		2 95	new
4	FL	Reeves Southeast Galvanizing Corp.	Tampa	01	RI/FS	RP	02/10/89	3 92	4 92	-1
				02	RI/FS	RP	03/01/88		2 93	DNE
4	FL	Sapp Battery Salvage	Cottondale	02	RI/FS	F	09/30/90	4 93	1 94	-1
4	FL	Schuylkill Metal Corp.	Plant City	01	RA	RP	06/24/92		1 94	new
4	FL	Sherwood Medical Industries	Deland	02	RA	RP	03/24/92		2 93	new
4	FL	Standard Auto Bumper Corp.	Hialeah	02	RI/FS	EP	03/12/91		4 93	DNE
4	FL	Stauffer Chemical Co (Tarpon Springs)	Tarpon Springs	01	RI/FS	RP	07/28/92		1 95	new
4	FL	Stauffer Chemical Co. (Tampa Plant)	Tampa	01	RI/FS	RP	09/02/92		1 95	new
4	FL	Sydney Mine Sludge Ponds	Brandon	01	RA	RP	06/01/89	4 93	1 94	-1
				01	RA	RP	09/30/92		1 94	new
4	FL	Wingate Road Municipal Incinerator Dump	Fort Lauderdale	01	RI/FS	RP	09/27/91	2 94	1 95	-3
4	FL	Zellwood Ground Water Contamination	Zellwood	01	RA	F	09/30/91	1 93	2 93	-1
				01	RA	F	09/21/92		3 94	new
4	GA	Cedartown Municipal Landfill	Cedartown	01	RI/FS	RP	03/30/90	1 93	2 93	-1

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RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
4	GA	Diamond Shamrock Corp. Landfill	Cedartown	01	RI/FS	RP	09/16/91	2	94	2	94	0
4	GA	Firestone Tire & Rubber Co.	Albany	01	RI/FS	RP	07/09/90	4	92	2	93	-2
4	GA	Hercules 009 Landfill	Brunswick	01	RI/FS	RP	07/15/88	4	92	1	93	-1
				02	RA	RP	01/07/92			2	93	new
4	GA	Marine Corps Logistics Base	Albany	01	RI/FS	FF	07/23/91			2	94	DNE
				02	RI/FS	FF	07/23/91	2	94	2	94	0
				04	RI/FS	FF	09/15/92			4	94	new
4	GA	Marzone Inc./Chevron Chemical Co.	Tifton	01	RI/FS	RP	09/28/90	2	93	3	93	-1
				02	RI/FS	RP	09/28/90	3	92	4	99	-29
4	GA	Mathis Brothers Landfill (South Marble Top Road)	Kensington	01	RI/FS	RP	11/02/88	3	92	4	92	-1
4	GA	Powersville Site	Peach County	01	RA	RP	01/08/91	2	93	2	93	0
4	GA	Robins Air Force Base (Landfill #4/ Sludge Lagoon)	Houston County	01	RA	FF	12/31/91			4	95	new
				02	RI/FS	FF	09/28/90			4	93	DNE
				03	RI/FS	FF	05/06/91	3	93	3	95	-8
4	GA	T.H. Agriculture & Nutrition Co.	Albany	01	RI/FS	RP	07/06/90	4	92	1	93	-1
4	GA	Woolfolk Chemical Works, Inc.	Fort Valley	01	RI/FS	RP	04/24/90	1	93	3	93	-2
4	KY	Brantley Landfill	Calvert City	01	RI/FS	RP	01/10/90			3	94	DNE
4	KY	Caldwell Lace Leather Co., Inc.	Auburn	01	RI/FS	EP	03/29/90	1	93	4	93	-3
4	KY	Distler Brickyard	West Point	01	RA	F	09/28/88	4	96	4	96	0

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RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
4	KY	Fort Hartford Coal Co. Stone Qurry	Olaton	01	RI/FS	RP	09/20/89	4	93	2	94	-2
4	KY	General Tire & Rubber Co. (Mayfield Landfill)	Mayfield	01	RI/FS	RP	12/20/89	4	92	3	93	-3
4	KY	Green River Disposal, Inc.	Macco	01	RI/FS	RP	05/22/90	1	93	1	94	-4
4	KY	National Electric Coil/Cooper Industries	Dayhoit	01	RI/FS	RP	05/18/92			3	94	new
4	KY	Red Penn Sanition Co. Landfill	Peewee Valley	01	RI/FS	F	08/18/89	1	93	4	93	-3
4	KY	Smith's Farm	Brooks	01	RA	RP	04/14/92			3	95	new
				02	RI/FS	RP	11/09/89			2	93	DNE
4	MS	Flowood Site	Flowood	01	RA	RP	08/09/91	3	93	3	93	0
4	MS	Newson Brothers/Old Reichhold Chemicals, Inc.	Columbia	01	RA	RP	03/12/92			2	93	new
4	NC	ABC One Hour Cleaners	Jacksonville	02	RI/FS	F	09/28/92			1	94	new
4	NC	Aberdeen Pesticide Dumps	Aberdeen	03	RI/FS	F	07/10/92			4	93	new
4	NC	Bypass 601 Ground Water Contamination	Concord	02	RI/FS	F	09/21/90	1	93	2	93	-1
4	NC	Camp Lejeune Military Reservation (Marine Corp Base)	Onslow County	02	RI/FS	FF	03/01/91	3	92	3	94	-8
				03	RI/FS	FF	06/28/90	2	93	4	93	-2
				04	RI/FS	FF	10/04/90	4	93	1	94	-1
				05	RI/FS	FF	08/21/91	2	94	4	94	-2
				06	RI/FS	FF	09/29/92			3	94	new
				09	RI/FS	FF	12/02/91			3	95	new
				10	RI/FS	FF	04/13/92			4	96	new
4	NC	Celanese Corp. (Shelby Fiber Operations)	Shelby	01	RA	RP	10/24/88	4	99	4	99	0
				02	RA	RP	09/24/90	4	95	4	95	0

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE	PRESENT COMPLETION SCHEDULE	STATUS
4	NC	Chemtronics, Inc.	Swannanoa	01	RA	RP	06/10/91	4 99	2 93	26
4	NC	FCX, Inc. (Statesville Plant)	Statesville	01	RI/FS	EP	11/29/90	1 93	4 93	-3
4	NC	FCX, Inc. (Washington Plant)	Washington	01	RI/FS	F	09/05/90	2 93	3 93	-1
4	NC	Koppers Co., Inc (Morrisville Plant)	Morrisville	01	RI/FS	RP	03/14/89	3 92	1 93	-2
4	NC	Martin-Marietta, Sodyeco, Inc.	Charlotte	01	RA	RP	09/25/89	2 99	2 99	0
4	NC	National Starch & Chemical Corp.	Salisbury	01	RA	RP	06/27/90	2 99	2 99	0
				03	RI/FS	RP	05/04/92		4 93	new
4	NC	North Carolina State University (Lot 86, Farm Unit #1)	Raleigh	01	RI/FS	RP	03/31/92		4 94	new
4	SC	Beaunit Corp. (Circular Knit and Dye)	Fountain Inn	01	RI/FS	RP	02/21/92		2 94	new
4	SC	Elmore Waste Disposal	Greer	01	RI/FS	F	09/15/89	1 93	2 93	-1
4	SC	Geiger (C & M Oil)	Rantoules	01	RA	F	03/31/92		2 94	new
4	SC	Golden Strip Septic Tank Service	Simpsonville	01	RI/FS	RP	06/30/88	4 91	4 91	0
4	SC	Helena Chemical Co. Landfill	Fairfax	01	RI/FS	RP	03/31/89	3 92	2 93	-3
4	SC	Kalama Specialty Chemicals	Beaufort	01	RI/FS	RP	01/13/88	3 92	3 93	-4
4	SC	Koppers Co., Inc (Florence Plant)	Florence	01	RI/FS	RP	02/29/88	4 92	2 94	-6
4	SC	Leonard Chemical Co., Inc.	Rock Hill	01	RI/FS	RP	12/13/90	2 93	3 93	-1

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4	SC	Lexington County Landfill Area	Cayce	01	RI/FS	RP	04/14/92			3	94	new
4	SC	Palmetto Recycling, Inc.	Columbia	01	RI/FS	F	05/06/92			2	94	new
4	SC	Palmetto Wood Preserving	Dixiana	01	RA	F	03/25/90	4	97	2	93	18
				02	RA	F	09/25/89	4	93	3	94	-3
4	SC	Para-Chem Southern, Inc.	Simpsonville	01	RI/FS	RP	09/30/91	4	93	4	93	0
4	SC	Rochester Property	Travelers Rest	01	RI/FS	RP	02/19/92			2	94	new
4	SC	Rock Hill Chemical Co.	Rock Hill	01	RI/FS	F	09/25/91	4	93	4	93	0
4	SC	Sangamo Weston, Inc./Twelve-Mile Creek/Lake Hartwel PCB	Pickens	02	RI/FS	F	08/31/90	2	93	2	94	-4
4	SC	Savannah River Site (USDOE)	Aiken	01	RA	FF	06/29/92			3	96	new
				02	RA	FF	06/29/92			4	96	new
				04	RI/FS	FF	02/28/90	4	92	4	95	-12
				05	RI/FS	FF	02/28/90	4	92	4	95	-12
				06	RI/FS	FF	07/06/90	4	93	3	93	1
				07	RI/FS	FF	08/06/90	1	94	2	93	3
				08	RI/FS	FF	08/06/90	2	93	1	93	1
				09	RI/FS	FF	12/06/90	2	93	1	93	1
				10	RI/FS	FF	01/09/91	3	93	3	93	0
				11	RI/FS	FF	03/06/91	4	93	4	94	4
				12	RI/FS	FF	05/08/91	4	93	1	95	-5
				13	RI/FS	FF	06/07/91	1	94	1	95	-4
				14	RI/FS	FF	07/01/91	1	94	2	95	-5
				15	RI/FS	FF	07/01/91	2	94	2	95	-4
				16	RI/FS	FF	03/06/91	2	94	2	95	-4
				17	RI/FS	FF	05/08/91	2	94	2	95	-4
				18	RI/FS	FF	07/01/91	2	94	2	95	-4
				19	RI/FS	FF	08/05/91	2	94	2	95	-4
				20	RI/FS	FF	10/31/91	2	94	3	95	-5
				21	RI/FS	FF	10/28/91			3	95	new
				22	RI/FS	FF	03/25/92			4	95	new
				23	RI/FS	FF	10/21/91			4	95	new
				24	RI/FS	FF	02/25/92			1	96	new

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AND REMEDIAL ACTIONS IN PROGRESS ON SEPTEMBER 30, 1992

RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE	PRESENT COMPLETION SCHEDULE	STATUS
				25	RI/FS	FF	02/05/92		1 96	new
				26	RI/FS	FF	07/15/92		2 96	new
				27	RI/FS	FF	08/15/92		2 95	new
				28	RI/FS	FF	09/15/92		2 96	new
4	SC	Townsend Saw Chain Co.	Pontiac	01	RI/FS	RP	08/30/91	4 93	1 94	-1
4	TN	American Creosote Works, Inc. (Jackson Plant)	Jackson	01	RA	F	06/12/89	1 92	3 93	-6
				02	RI/FS	F	12/29/89	1 94	1 94	0
4	TN	Lewisburg Dump	Lewisburg	01	RA	RP	09/04/92		4 93	new
4	TN	Milan Army Ammunition Plant	Milan	02	RI/FS	FF	10/01/89	1 94	3 93	2
				03	RI/FS	FF	10/01/89	1 94	1 94	0
				04	RI/FS	FF	10/01/89	1 94	1 94	0
				05	RI/FS	FF	10/01/89	1 94	1 94	0
				06	RI/FS	FF	10/01/89	1 94	1 94	0
				07	RI/FS	FF	10/01/89	1 94	1 94	0
				08	RI/FS	FF	10/01/89	1 94	1 94	0
				09	RI/FS	FF	10/01/89	1 94	1 94	0
				10	RI/FS	FF	10/01/89	1 94	1 94	0
				11	RI/FS	FF	10/01/89	1 94	1 94	0
				12	RI/FS	FF	07/23/90	1 94	4 95	-7
				13	RI/FS	FF	11/26/91	4 92	1 95	-9
4	TN	Murray-Ohio Dump	Lawrenceburg	01	RI/FS	RP	03/06/90	1 94	1 94	0
4	TN	Murray-Ohio Manufacturing Co. (Horseshoe Bend Dump)	Lawrenceburg	01	RI/FS	RP	03/30/90	1 94	1 95	-4
4	TN	Oak Ridge Reservation (USDOE)	Oak Ridge	01	RA	FF	10/01/91		1 93	new
				02	RI/FS	FF	12/29/89		1 92	DNE
				03	RI/FS	FF	12/29/89	4 91	1 92	-1
				03	RA	FF	11/01/91		2 94	new
				04	RI/FS	FF	03/31/90	4 91	4 97	-24
				05	RI/FS	FF	03/31/90	2 93	4 95	-10
				07	RI/FS	FF	06/05/90	2 93	4 98	-22
				09	RI/FS	FF	06/05/90	3 93	3 98	-20
				10	RI/FS	FF	06/05/90	3 93	4 94	-5
				11	RI/FS	FF	01/03/90	4 93	4 97	-16
				12	RI/FS	FF	01/03/90	4 93	3 99	-23

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STATUS OF REMEDIAL INVESTIGATIONS, FEASIBILITY STUDIES, AND REMEDIAL ACTIONS IN PROGRESS ON SEPTEMBER 30, 1992

RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
				13	RI/FS	FF	06/09/90	3	93	1	99	-19
				15	RI/FS	FF	09/14/90	1	94	1	99	-20
				16	RI/FS	FF	09/18/90	1	94	2	93	3
				20	RI/FS	FF	07/16/90	2	93	1	98	-19
				21	RI/FS	FF	12/28/90			2	98	DNE
				22	RI/FS	FF	12/28/90			3	99	DNE
				23	RI/FS	FF	01/14/91	3	93	3	99	-24
				27	RI/FS	FF	10/02/91			3	96	new
4	TN	Velsicol Chemical Corp. (Hardeman County)	Toone	02	RI/FS	RP	11/04/91			3	94	new
5	IL	Adams County Quincy Landfills 2 & 3	Quincy	01	RI/FS	PS	09/12/90	2	93	2	93	0
5	IL	Beloit Corp.	Rockton	01	RI/FS	PS	09/27/90	2	93	2	94	-4
5	IL	Byron Salvage Yard	Byron	03	RA	F	09/04/92			2	99	new
				04	RI/FS	EP	12/29/89	1	93	4	93	-3
5	IL	Central Illinois Public Service Co.	Taylorville	01	RI/FS	PS	09/12/90	2	93	4	92	2
5	IL	DuPage County Landfill/Blackwell Forest Preserve)	Warrenville	01	RI/FS	RP	09/29/89	1	93	4	93	-3
5	IL	H.O.D. Landfill	Antioch	01	RI/FS	RP	08/20/90	4	93	1	95	-5
5	IL	Ilada Energy Co.	East Cape Girardeau	01	RI/FS	RP	06/19/89	1	93	2	93	-1
5	IL	Interstate Pollution Control, Inc.	Rockford	01	RI/FS	PS	09/27/90	3	93	3	95	-8
5	IL	Joliet Army Ammunition Plant (Manufacturing Area)	Joilet	01	RI/FS	FF	06/09/89	1	93	1	95	-8

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AND REMEDIAL ACTIONS IN PROGRESS ON SEPTEMBER 30, 1992

RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
5	IL	Joliet Army Ammunition Plant(Load-Assembly-Packing Area	Joliet	01	RI/FS	FF	06/09/89	4	93	1	95	-5
5	IL	Kerr-McGee (Kress Creek/West Branch of Dupage River)	DuPage County	01	RI/FS	F	09/30/92	3	93	3	95	-8
5	IL	Kerr-McGee (Reed-Keppler Park)	West Chicago	01	RI/FS	F*	05/20/92	3	93	3	95	-8
5	IL	Kerr-McGee (Sewage Treat Plant)	West Chicago	01	RI/FS	F	05/20/92			3	95	new
5	IL	LaSalle Electric Utilities	LaSalle	02	RA	S	04/11/89	2	93	1	95	-7
5	IL	Lenz Oil Service, Inc.	Lemont	01	RI/FS	RP	09/29/89	3	93	2	94	-3
5	IL	MIG/Dewane Landfill	Belvidere	01	RI/FS	RP	03/29/91	2	94	2	94	0
5	IL	NL Industries/Taracorp Lead Smelter	Granite City	01	RA	F	09/30/92			4	94	new
5	IL	Outboard Marine Corp.	Waukegan	02	RI/FS	RP	09/26/90			1	95	DNE
				03	RA	RP	06/27/91	3	93	4	93	-1
5	IL	Pagel's Pit	Rockford	02	RI/FS	RP	08/13/91	2	93	4	93	-2
5	IL	Parsons Casket Hardware Co.	Belvidere	01	RI/FS	S	09/29/88	1	93	4	93	-3
5	IL	Sangamo Electric Dump/Crab Orchard National Wildlife Refuge (USDOI)	Carterville	03	RI/FS	FF	09/13/91	1	95	1	95	0
				04	RI/FS	FF	09/13/91	1	95	1	95	0
5	IL	Savanna Army Depot Activity	Savanna	02	RI/FS	FF	09/29/89	4	93	1	94	-1
5	IL	Southeast Rockford Ground Water Contamination	Rockford	01	RI/FS	S	07/10/89	2	93	2	94	-4

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RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE	PRESENT COMPLETION SCHEDULE	STATUS
5	IL	Velsicol Chemical (Illinois)	Marshall	01	RA	RP	03/29/91	4 94	4 94	0
5	IL	Wauconda Sand & Gravel	Wauconda	02	RA	RP	09/30/91	1 93	3 93	-2
5	IL	Woodstock Municipal Landfill	Woodstock	01	RI/FS	RP	09/29/89	2 93	3 93	-1
5	IL	Yeoman Creek Landfill	Waukegan	01	RI/FS	RP	12/22/89		4 94	DNE
5	IN	Carter Lee Lumber Co.	Indianapolis	01	RI/FS	F	04/09/92		2 95	new
5	IN	Columbus Old Municipal Landfill #1	Columbus	01	RI/FS	RP	09/15/87	2 92	1 93	-3
5	IN	Conrail Rail Yard (Elkhart)	Elkhart	02	RI/FS	F	10/01/90	4 93	1 94	-1
5	IN	Continental Steel Corp.	Kokomo	01	RI/FS	S	05/25/90	3 93	2 94	-3
				02	RI/FS	S	08/26/91	4 93	1 95	-5
				03	RI/FS	S	03/27/92		2 95	new
5	IN	Douglas Road/Uniroyal, Inc., Landfill	Mishawaka	01	RI/FS	F*	08/24/89	1 93	1 95	-8
5	IN	Fort Wayne Reduction Dump	Fort Wayne	01	RA	RP	09/20/90	4 93	3 94	-3
5	IN	Galen Meyer's Dump/Drum Salvage	Osceola	01	RI/FS	S	04/11/89	2 93	3 95	-9
5	IN	Himco, Inc., Dump	Elkhart	01	RI/FS	F	09/21/89	1 93	1 93	0
5	IN	Lake Sandy Jo (M&M Landfill)	Gary	02	RA	F	09/28/87	2 92	1 93	-3
5	IN	Lakeland Disposal Service, Inc.	Claypool	01	RI/FS	RP	03/30/89	4 93	4 93	0
5	IN	Marion (Bragg) Dump	Marion	01	RA	MR	08/07/89	3 93	3 93	0
5	IN	Neal's Landfill (Bloomington)	Bloomington	01	RA	RP	07/07/88	2 89	2 89	0

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE	PRESENT COMPLETION SCHEDULE	STATUS
5	IN	Ninth Avenue Dump	Gary	01	RA	RP	07/16/91	1 93	2 93	-1
				01	RA	RP	12/11/90	1 93	2 93	-1
				02	RA	RP	07/16/91		1 95	DNE
5	IN	Prestolite Battery Division	Vincennes	01	RI/FS	F	12/23/88	2 93	2 93	0
5	IN	Reilly Tar & Chemical Corp. (Indianapolis Plant)	Indianapolis	03	RI/FS	RP	09/21/92		3 93	new
				04	RI/FS	FE	09/21/92		1 95	new
				05	RI/FS	FE	09/21/92		1 95	new
5	IN	Seymour Recycling Corp.	Seymour	01	RA	RP	08/17/87	2 94	2 94	0
				02	RA	RP	09/08/89	3 95	3 95	0
5	IN	Southside Sanitary Landfill	Indianapolis	01	RI/FS	PS	09/29/89	1 93	1 94	-4
5	IN	Tippecanoe Sanitary Landfill, Inc.	Lafayette	01	RI/FS	RP	03/08/90	4 93	1 95	-5
5	IN	Tri-State Plating	Columbus	01	RA	F	03/29/91	2 95	2 99	-16
5	IN	Waste, Inc. Landfill	Michigan City	01	RI/FS	RP	03/31/87	3 92	4 93	-5
5	IN	Whiteford Sales & Service/Nationale ase	South Bend	01	RI/FS	F	09/29/89	2 93	1 94	-3
5	MI	Adam's Plating	Lansing	01	RI/FS	F	09/28/88	1 94	2 94	-1
5	MI	Albion-Sheridan Township Landfill	Albion	01	RI/FS	F	01/07/92		2 94	new
5	MI	American Anodco, Inc.	Ionia	01	RI/FS	RP	10/23/87	3 92	4 93	-5
5	MI	Anderson Development Co.	Adrian	01	RA	RP	01/05/92		3 93	new
5	MI	Auto Iron Chemicals, Inc.	Kalamazoo	02	RI/FS	RP	06/01/90	2 92	1 94	-7
5	MI	Bendix Corp./Allied Automotive	St. Joseph	01	RI/FS	RP	02/13/89	1 93	1 94	-4

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RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE	PRESENT COMPLETION SCHEDULE	STATUS
5	MI	Bofors Nobel, Inc.	Muskegon	01	RA	F	09/25/92		4 99	new
				02	RI/FS	S	03/31/90	2 93	4 93	-2
5	MI	Burrows Sanitation	Hartford	02	RA	RP	06/20/91	4 94	4 94	0
5	MI	Duell & Gardner Landfill	Dalton Township	01	RI/FS	S	04/08/87	1 92	3 93	-6
5	MI	Electrovoice	Buchanan	02	RI/FS	F	09/15/92		4 94	new
5	MI	Hedblum Industries	Oscoda	01	RA	RP	09/22/92		2 95	new
5	MI	Hi-Mill Manufacturing Co.	Highland	01	RI/FS	RP	09/23/88	1 93	4 93	-3
5	MI	J & L Landfill	Rochester Hills	01	RI/FS	F	04/24/89	2 92	2 93	-4
5	MI	Liquid Disposal, Inc.	Utica	01	RA	RP	09/30/92		1 98	new
5	MI	Mason County Landfill	Pere Marquette Township	02	RI/FS	F	09/28/88	3 95	3 95	0
5	MI	Metal Working Shop	Lake Ann	01	RI/FS	EP	11/15/90	1 92	3 92	-2
5	MI	Metamora Landfill	Metamora	01	RA	S	02/17/88	1 93	4 93	-3
				03	RI/FS	S	09/29/89	1 92	3 94	-10
5	MI	North Bronson Industrial Area	Bronson	01	RI/FS	S	06/24/87	1 93	2 94	-5
5	MI	OTT/Story/Cordova Chemical Co.	Dalton Township	01	RA	F	09/25/91	4 95	4 95	0
				02	RA	F	09/28/92		2 96	new
				03	RI/FS	F	03/13/92	1 93	2 93	-1
5	MI	Organic Chemicals, Inc.	Grandville	02	RI/FS	F	04/22/88	1 93	2 94	-5
5	MI	Packaging Corp. of America	Filer City	01	RI/FS	RP	05/02/85	2 93	4 93	-2

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
5	MI	Parsons Chemical Works, Inc.	Grand Ledge	01	RI/FS	S	09/29/89	3	93	4	94	-5
5	MI	Petoskey Municipal Well Field	Petoskey	01	RI/FS	S	10/05/90	1	93	1	95	-8
5	MI	Rockwell International Corp. (Allegan Plant)	Allegan	01	RI/FS	RP	06/07/88	1	94	1	95	-4
5	MI	Rose Township Dump	Rose Township	01	RA	RP	09/08/92			1	96	new
5	MI	Roto-Finish Co., Inc.	Kalamazoo	01	RI/FS	RP	12/18/87	2	93	1	94	-3
5	MI	Shiawassee River	Howell	01	RI/FS	S	06/19/87	1	93	3	94	-6
5	MI	Tar Lake	Mancelona Township	01	RI/FS	RP	01/29/86	1	92	3	93	-6
5	MI	Thermo-Chem, Inc.	Muskegon	02	RI/FS	RP	09/21/87			1	94	DNE
5	MI	Torch Lake	Houghton County	02	RI/FS	RP	09/28/88			1	94	DNE
5	MI	U.S. Aviex	Howard Township	01	RA	F	09/27/91	4	92	4	93	-4
5	MI	Verona Well Field	Battle Creek	01	RA	F	09/29/86			2	93	DNE
5	MI	Wash King Laundry	Pleasant Plains Twp	01	RI/FS	S	09/10/87			2	93	DNE
5	MN	Arrowhead Refinery Co.	Hermantown	01	RA	RP	08/15/90	3	92	4	93	-5
5	MN	Burlington Northern (Brainerd/Baxter Plant)	Brainerd/Baxter	01	RA	RP	03/31/87	1	94	3	95	-6
5	MN	Dakhue Sanitary Landfill	Cannon Falls	01	RA	S	06/23/92			2	93	new
				02	RI/FS	S	03/29/90	4	92	2	93	-2

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
5	MN	East Bethel Demolition Landfill	East Bethel Township	01	RI/FS	PS	03/01/85			4	92	DNE
5	MN	Freeway Sanitary Landfill	Burnsville	01	RI/FS	PS	03/27/86	1	92	4	93	-7
5	MN	Joslyn Manufacturing & Supply Co.	Brooklyn Center	01	RA	PS	12/31/88	4	91	4	93	-8
5	MN	Koch Refining Co./N-Ren Corp.	Pine Bend	01	RA	PS	08/03/92			4	94	new
5	MN	Koppers Coke	St.Paul	01	RI/FS	RP	06/29/87	3	92	4	92	-1
5	MN	Kummer Sanitary Landfill	Bemidji	02	RA	S	03/26/90	3	93	4	93	-1
5	MN	Kurt Manufacturing Co.	Fridley	01	RA	PS	12/15/86	4	99	4	93	24
5	MN	LaGrand Sanitary Landfill	LaGrand Township	01	RI/FS	S	06/30/87	3	92	4	92	-1
5	MN	Long Prairie Ground Water Contamination	Long Prairie	01	RA	S	04/11/91	1	94	3	94	-2
5	MN	MacGillis & Gibbs Co./Bell Lumber & Pole Co.	New Brighton	01	RI/FS	S	09/29/87	3	92	4	92	-1
				03	RI/FS	F	01/15/92			4	93	new
5	MN	Naval Industrial Reserve Ordnance Plant	Fridley	01	RA	FF	06/14/91	4	99	4	99	0
				02	RI/FS	FF	03/28/91	1	95	2	95	-1
5	MN	New Brighton/Arden Hills	New Brighton	07	RI/FS	FF	06/28/88	2	94	4	94	-2
				09	RI/FS	FF	06/21/89	2	92	4	92	-2
5	MN	Oak Grove Sanitary Landfill	Oak Grove Township	01	RA	RP	02/21/92			4	93	new
				02	RA	RP	08/05/92			4	99	new
5	MN	Oakdale Dump	Oakdale	01	RA	PS	11/10/83			2	94	DNE
5	MN	Olmstead County Sanitary Landfill	Oronco	01	RI/FS	PS	12/20/89	2	93	4	93	-2

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5	MN	Perham Arsenic	Perham	01	RI/FS	F	05/01/91	4	93	2	94	-2
5	MN	Pine Bend Sanitary Landfill (once listed as Pine Bend Sanitary Landfill/Crosby American Demolition Landfill)	Dakota County	02	RI/FS	PS	04/15/85	1	92	3	93	-6
5	MN	Reilly Tar & Chemical Corp.	St. Louis Park	02	RA	RP	09/30/87	4	99	4	99	0
				04	RA	RP	04/01/91	1	93	4	99	-27
				05	RI/FS	RP	09/04/86			1	94	DNE
5	MN	Ritari Post & Pole	Sebeka	01	RI/FS	S	06/30/87	4	92	3	93	-3
5	MN	St. Augusta Sanitary Landfill/Engen Dump (once listed as St. Augusta Sanitary Landfill/St. Cloud Dump)	St. Augusta Township	01	RI/FS	PS	02/15/91	2	93	3	93	-1
5	MN	St. Louis River Site	St. Louis County	01	RA	PS	09/04/92			4	93	new
				02	RI/FS	PS	09/30/85	4	95	4	95	0
				03	RI/FS	PS	04/15/91	4	92	2	94	-6
5	MN	University of Minnesota (Rosemount Research Center)	Rosemount	03	RA	PS	06/12/92			4	94	new
5	MN	Waite Park Wells	Waite Park	02	RI/FS	PS	09/20/89	4	92	4	93	-4
5	MN	Washington County Landfill	Lake Elmo	01	RA	RP*	01/16/92	4	99	4	99	0
				02	RA	RP*	01/16/91	4	91	3	92	-3
5	OH	Alsco Anaconda	Gnadenhutten	01	RA	RP	09/30/91	4	92	4	93	-4
5	OH	Big D Campground	Kingsville	01	RA	RP	06/03/91			3	96	DNE
5	OH	Bowers Landfill	Circleville	01	RA	F	09/05/91	4	92	1	93	-1
5	OH	E.H. Schilling Landfill	Hamilton Township	01	RA	RP	04/17/92			4	93	new

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5	OH	Feed Materials Production Center (USDOE)	Fernald	01	RI/FS	FF	04/09/90	2	94	1	94	1
				02	RI/FS	FF	04/09/90	2	94	1	93	5
				03	RI/FS	FF	04/09/90	2	94	2	96	-8
				04	RI/FS	FF	04/09/90	2	94	3	93	3
				05	RI/FS	FF	04/09/90	2	94	3	94	-1
5	OH	Fields Brook	Ashtabula	02	RI/FS	RP	03/22/89	1	93	4	94	-7
				03	RI/FS	RP	09/26/89	4	93	3	94	-3
5	OH	Industrial Excess Landfill	Uniontown	01	RA	F	09/14/89	3	91	4	92	-5
				02	RA	RP	08/17/89	3	91	4	92	-5
5	OH	Laskin/Poplar Oil Co. (once listed as	Jefferson Township	01	RA	RP	03/23/92			2	94	new
5	OH	Mound Plant (USDOE)	Miamisburg	01	RI/FS	FF	08/06/90	3	95	3	95	0
				06	RI/FS	FF	07/17/92			4	99	new
				09	RI/FS	FF	05/22/92			4	99	new
5	OH	Nease Chemical	Salem	01	RI/FS	RP	01/27/88	1	93	2	94	-5
5	OH	New Lyme Landfill	New Lyme	01	RA	F	04/11/88	2	92	2	93	-4
5	OH	Ormet Corp.	Hannibal	01	RI/FS	RP	03/27/87	4	91	1	93	-5
5	OH	Powell Road Landfill	Dayton	01	RI/FS	RP	11/12/87	2	92	2	93	-4
5	OH	Reilly Tar & Chemical Corp. (Dover Plant)	Dover	01	RI/FS	RP	03/29/89	1	93	1	94	-4
5	OH	Sanitary Landfill Co. (Industrial Waste Disposal Co.Inc	Dayton	01	RI/FS	RP	12/16/87	1	93	1	93	0
5	OH	Skinner Landfill	West Chester	02	RI/FS	F	12/20/88			2	93	DNE
5	OH	South Point Plant	South Point	01	RI/FS	RP	03/31/87	4	91	2	93	-6

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RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE	PRESENT COMPLETION SCHEDULE	STATUS
5	OH	United Scrap Lead Co., Inc.	Troy	01	RA	F	09/17/92		2 93	new
5	OH	Van Dale Junkyard	Marietta	01	RI/FS	F	08/18/90	3 92	2 93	-3
5	OH	Wright-Patterson Air Force Base	Dayton	01	RI/FS	FF	03/21/91	4 93	2 94	-2
				01	RI/FS	FF	03/21/91		2 93	DNE
				02	RI/FS	FF	07/10/92		3 96	new
5	WI	Better Brite Plating Co. Chrome and Zinc Shops	DePere	01	RI/FS	S	09/28/90	2 93	2 94	-4
				02	RA	F	08/05/91	3 97	3 97	0
5	WI	Delavan Municipal Well #4	Delavan	01	RI/FS	PS	09/28/90	1 93	1 94	-4
5	WI	Hagen Farm	Stoughton	01	RA	RP	08/14/91	1 94	1 94	0
5	WI	Hechimovich Sanitary Landfill	Williamstown	01	RI/FS	PS	09/28/90	3 93	1 94	-2
5	WI	Lauer I Sanitary Landfill	Menomonee Falls	01	RI/FS	PS	08/01/90	1 93	2 94	-5
5	WI	Lemberger Transport & Recycling	Franklin Township	02	RI/FS	F	04/23/91	3 93	3 93	0
5	WI	Madison Metropolitan Sewerage District	Blooming Grove	01	RI/FS	RP	09/24/92		3 94	new
5	WI	Muskego Sanitary Landfill	Muskego	02	RI/FS	RP	08/14/87	3 92	2 93	-3
5	WI	N.W. Mauth Co., Inc.	Appleton	01	RI/FS	S	09/30/88	2 93	4 93	-2
5	WI	National Presto Industries, Inc.	Eau Claire	04	RI/FS	RP	06/04/86		2 93	DNE
5	WI	Oconomowoc Electroplating Co., Inc.	Ashippin	01	RA	F	09/30/91	1 95	1 95	0
				02	RI/FS	F	09/20/90	1 93	1 94	-4
5	WI	Onalaska Municpal Landfill	Onalaska	01	RA	F	02/28/92		4 94	new

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
5	WI	Sauk County Landfill	Excelsior	01	RI/FS	PS	09/22/91			3	94	DNE
5	WI	Schmalz Dump	Harrison	02	RA	F	09/29/88	1	93	3	93	-2
5	WI	Scrap Processing Co., Inc.	Medford	01	RI/FS	F	05/11/92			1	94	new
5	WI	Sheboygan Harbor & River	Sheboygan	01	RI/FS	RP	04/11/86	1	93	2	94	-5
5	WI	Wheeler Pit	La Prairie Township	01	RA	RP	05/21/92			1	94	new
6	AR	Frit Industries	Walnut Ridge	01	RA	RP	09/08/83			2	94	DNE
6	AR	Gurley Pit	Edmondson	01	RA	F	03/29/89	4	93	1	93	3
6	AR	Midland Products	Ola/Birta	01	RA	S	06/29/90	2	96	4	93	10
6	AR	Monroe Auto Equipment Co. (Paragould Pit)	Paragould	01	RI/FS	RP	06/28/91	4	93	2	94	-2
6	AR	Popile, Inc.	El Dorado	01	RI/FS	F	12/27/91			1	93	new
6	AR	South 8th Street Landfill	Jacksonville	01	RI/FS	F	06/29/92			3	93	new
6	AR	Vertac, Inc.	Jacksonville	03	RI/FS	RP	07/12/89	2	93	2	94	-4
				05	RI/FS	RP	07/12/89	1	93	1	93	0
6	A	American Cresote Works, Inc (Winnfield)	Winnfield	01	RI/FS	F	12/27/91			1	93	new
6	LA	Bayou Bonfouca	Slidell	02	RA	F	02/04/91	4	94	4	97	-12
6	LA	Cleve Reber	Sorrento	01	RA	RP	04/10/91	1	97	1	97	0
6	LA	Combustion, Inc.	Denham Springs	01	RI/FS	PS	10/25/88	2	93	2	94	-4
6	LA	D.L. Mud, Inc.	Abbeville	01	RI/FS	RP	06/20/90	1	93	4	93	-3

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RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
6	LA	Dutchtown Treatment Plant	Ascension Parish	01	RI/FS	RP	08/07/89	2	94	4	93	2
6	LA	Louisiana Army Ammunition Plant	Doyline	02	RI/FS	FF	01/31/89	2	93	2	94	-4
6	LA	Old Inger Oil Refinery	Darrow	01	RA	S	04/25/86	2	94	2	99	-20
				01	RI/FS	S	04/09/90	1	92	1	95	-12
6	LA	PAB Oil & Chemical Service, Inc.	Abbeville	01	RI/FS	F	06/27/90	2	93	3	93	-1
6	LA	Petro-Processors of Louisiana, Inc.	Scotlandville	01	RA	RP	06/30/87	4	97	4	97	0
6	NM	AT & SF (Clovis)	Clovis	01	RA	RP	08/07/89	4	95	4	95	0
6	NM	Cimarron Mining Corp.	Carrizozo	01	RA	EP	08/13/91	4	94	1	93	7
				02	RA	EP	12/20/91	2	95	2	95	0
6	NM	Cleveland Mill	Silver City	01	RI/FS	S	03/29/90	2	93	3	93	-1
6	NM	Lee Acres Landfill (USDOI)	Farmington	01	RI/FS	FF	02/25/92			2	94	new
				02	RI/FS	FF	02/25/92			4	94	new
6	NM	South Valley	Albuquerque	02	RA	RP	10/04/90	3	92	1	93	-2
				03	RA	RP	12/28/89	2	94	1	93	5
6	NM	United Nuclear Corp.	Church Rock	01	RA	RP	09/12/89	4	97	4	95	8
6	OK	Double Eagle Refinery Co.	Oklahoma City	02	RI/FS	F	06/29/92			4	93	new
6	OK	Fourth Street Abandoned Refinery	Oklahoma City	02	RI/FS	F	06/29/92			4	93	new
6	OK	Hardage/Criner	Criner	02	RA	RP	11/20/91			1	95	new

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE	PRESENT COMPLETION SCHEDULE	STATUS
6	OK	Tinker Air Force Base	Oklahoma City	01	RA	FF	06/10/91	4 93	4 93	0
				02	RI/FS	FF	12/09/88	2 93	4 93	-2
6	TX	Air Force Plant #4 (General Dynamics)	Fort Worth	01	RI/FS	FF	08/20/90	1 95	1 95	0
6	TX	Bailey Waste Disposal	Bridge City	01	RA	MR	02/19/92		3 94	new
6	TX	Bio-Ecology Systems, Inc.	Grand Prairie	01	RA	S	05/12/86	2 93	2 94	-4
6	TX	Brio Refining Co., Inc.	Friendswood	01	RA	RP	06/29/89	2 97	2 97	0
6	TX	Dixie Oil Processors, Inc.	Friendswood	01	RA	RP	03/25/92		3 93	new
6	TX	French, Ltd.	Crosby	01	RA	RP	06/28/89	4 96	4 96	0
				02	RA	RP	06/28/89	3 98	3 98	0
6	TX	Geneva Industries/Fuhrmann Energy	Houston	02	RA	S	03/31/89	4 94	1 94	3
6	TX	Koppers Co., Inc. (Texarkana Plant)	Texarkana	01	RA	FE	05/13/91		3 93	DNE
6	TX	Lone Star Army Ammunition Plant	Texarkana	01	RI/FS	FF	06/18/90	3 93	3 94	-4
				02	RI/FS	FF	06/18/90		3 94	DNE
6	TX	Longhorn Army Ammunition Plant	Karnack	01	RI/FS	FF	10/16/91		2 95	new
				02	RI/FS	FF	10/16/91		2 95	new
				03	RI/FS	FF	10/16/91		2 95	new
				04	RI/FS	FF	10/16/91		2 95	new
				05	RI/FS	FF	10/16/91		2 95	new
6	TX	MOTCO, Inc.	La Marque	01	RA	MR	12/31/88	1 94	1 96	-8
6	TX	North Calvacade Street	Houston	01	RA	S	09/12/91	3 96	1 94	10
6	TX	Odessa Chromium #1	Odessa	02	RA	S	09/27/89	1 94	3 93	2

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6	TX	Odessa Chromium #2 (Andrews Highway)	Odessa	02	RA	S	03/30/90	1	94	3	93	2
6	TX	Pesses Chemical Co.	Fort Worth	01	RA	S	06/27/90	4	93	4	93	0
6	TX	Sikes Disposal Pits	Crosby	01	RA	S	05/04/89	2	97	2	97	0
6	TX	Sol Lynn/Industrial Transformers	Houston	01	RA	RP	06/12/91	4	92	3	93	-3
				02	RA	S	09/10/91	3	94	1	94	2
6	TX	Tex-Tin Corp.	Texas City	01	RI/FS	RP	03/30/90	4	93	1	94	-1
6	TX	Texarkana Wood Preserving Co.	Texarkana	02	RI/FS	S	03/28/91	1	93	2	93	-1
6	TX	United Creosoting Co.	Conroe	02	RA	S	03/26/92			3	93	new
7	IA	Des Moines TCE (once listed as DICO)	Des Moines	02	RI/FS	RP	08/08/89	3	92	3	93	-4
7	IA	E.I. Du Pont de Nemours & Co., Inc. (County Road)	West Point	01	RA	RP	06/05/92			4	93	new
7	IA	Electro-Coatings, Inc.	Cedar Rapids	01	RI/FS	PS	10/17/90			3	93	DNE
7	IA	Fairfield Coal Gasification Plant	Fairfield	01	RA	RP	07/20/92			4	93	new
				02	RA	RP	07/20/92			2	93	new
				03	RA	RP	07/20/92			1	95	new
7	IA	Iowa Army Ammunition Plant	Middletown	01	RI/FS	FF	09/20/90	2	95	2	95	0
7	IA	Northwestern States Portland Cement Co.	Mason City	01	RA	RP	06/24/92			4	94	new
7	IA	Red Oak City Landfill	Red Oak	01	RI/FS	RP	12/04/89	4	92	1	93	-1
7	IA	Shaw Avenue Dump	Charles City	01	RA	RP	03/03/92			2	95	new

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RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE	PRESENT COMPLETION SCHEDULE	STATUS
7	IA	Sheller-Globe Corp. Disposal	Keokuk	01	RI/FS	RP	10/18/90	1 93	3 93	-2
7	IA	Vogel Paint & Wax	Orange City	01	RA	PS	05/20/91		4 94	DNE
7	KS	29th & Mead Ground Water Contamination	Wichita	01	RI/FS	PS	09/27/89	4 92	4 93	-4
7	KS	Cherokee County (Tar Creek, Cherokee County)	Cherokee County	01	RA	F	07/13/89	2 93	2 93	0
				03	RI/FS	RP	05/07/90	1 93	3 93	-2
				04	RI/FS	RP	05/07/90	1 93	3 93	-2
7	KS	Fort Riley	Junction City	01	RI/FS	FF	08/23/90	1 95	1 95	0
				02	RI/FS	FF	01/22/92		1 95	new
7	KS	Obee Road	Hutchinson	01	RI/FS	PS	03/27/90	3 93	2 94	-3
7	KS	Strother Field Industrial Park	Cowley County	01	RI/FS	PS	03/28/90	4 93	3 93	1
7	MO	Bee Cee Manufacturing Co.	Malden	01	RI/FS	S	12/29/88	1 93	4 93	-3
7	MO	Kem-Pest Laboratories	Cape Girardeau	01	RA	F	09/25/91	2 93	1 93	1
7	MO	Lake City Army Ammunition Plant (Northwest Lagoon)	Independence	01	RI/FS	FF	08/01/87	4 94	4 95	-4
				01	RI/FS	FF	08/03/90		1 99	DNE
				02	RI/FS	FF	04/21/92		1 94	new
				03	RI/FS	FF	06/27/90	3 93	4 94	-5
7	MO	North-U Drive Well Contamination	Springfield	01	RI/FS	S	09/27/85	4 92	2 93	-2
7	MO	Oronogo-Duenweg Mining Belt	Jasper County	01	RI/FS	RP	08/02/91	2 94	2 94	0
				01	RI/FS	F	04/24/90	2 94	2 94	0
7	MO	Quality Plating	Sikeston	01	RI/FS	S	12/31/88	3 93	3 93	0
7	MO	Solid State Circuits, Inc.	Republic	01	RA	PS	09/27/91	4 93	1 94	-1

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RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
7	MO	St. Louis Airport/Hazelwood Interim Storage/Futura Coat	St. Louis County	01	RI/FS	FF	06/26/90	4	94	2	95	-2
7	MO	Syntex Facility	Verona	01	RA	RP	09/30/89			4	93	DNE
				02	RI/FS	RP	11/28/89	2	92	1	93	-3
7	MO	Times Beach Site	Times Beach	02	RA	RP	09/18/91	3	95	3	95	0
				02	RA	RP	09/16/91	4	93	4	93	0
				03	RA	F	03/14/83	1	92	2	94	-9
7	MO	Weldon Spring Quarry (USDOE/Army)	St. Charles County	01	RI/FS	FF	08/22/86	2	93	4	93	-2
				02	RA	FF	07/15/92			3	94	new
				04	RI/FS	FF	10/24/91			1	94	new
				05	RI/FS	FF	10/24/91			1	94	new
7	MO	Weldon Springs Ordnance Works	St. Charles County	01	RI/FS	FF	02/16/90	1	93	2	95	-9
7	NE	10th Street Site	Columbus	01	RI/FS	F	12/08/89	3	92	2	93	-3
7	NE	Cleburn Street Well	Grand Island	01	RI/FS	F	09/16/91	3	93	4	93	-1
7	NE	Cornhusker Army Ammunition Plant	Hall County	01	RI/FS	FF	03/15/90	4	94	4	94	0
7	NE	Hastings Ground Water Contamination	Hastings	06	RI/FS	RP	11/20/91			3	93	new
				07	RA	F	12/10/91			2	93	new
				12	RI/FS	F	08/31/90	1	94	3	94	-2
				13	RI/FS	F	01/03/91	2	93	2	93	0
				14	RI/FS	RP	06/15/86	2	93	3	94	-5
				14	RI/FS	RP	09/30/91			4	95	DNE
				16	RI/FS	RP	02/11/91	2	93	4	95	-10
7	NE	Lindsay Manufacturing Co.	Lindsay	01	RA	RP	09/30/92			1	95	new
7	NE	Nebraska Ordnance Plant (Former)	Mead	01	RI/FS	RP	09/26/91	4	93	4	93	0
				02	RI/FS	RP	08/18/92			4	95	new

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7	NE	Sherwood Medical Co.	Norfolk	01	RI/FS	RP	03/21/91	2	93	3	93	-1
7	NE	Waverly Groundwater Contamination	Waverly	01	RA	RP	12/11/90	4	94	4	94	0
8	CO	Air Force Plant PJKS	Watertown	01	RI/FS	FF	02/07/89	4	92	1	93	-1
8	CO	Broderick Wood Products	Denver	01	RA	F	09/25/89	4	92	2	93	-2
8	CO	California Gulch	Leadville	01	RA	RP	09/04/90	4	93	4	92	4
				02	FS	FE	08/29/91			1	94	DNE
				02	RI	RP	08/29/91			1	94	DNE
				02	RI	FE	08/29/91			2	93	DNE
				02	RI/FS	RP	04/07/87	1	93	1	94	-4
				02	RI/FS	RP	04/07/87	1	93	2	93	-1
				03	RI/FS	RP	08/29/91			3	93	DNE
				04	RI/FS	RP	12/01/91			1	94	new
				09	RI/FS	RP	10/04/91			3	94	new
8	CO	Central City - Clear Creek	Idaho Springs	02	RA	F	09/21/92			4	93	new
				02	RA	F	03/29/89	4	91	4	91	0
				03	RA	S	09/30/92			4	96	new
8	CO	Denver Radium Site	Denver	02	RA	F	04/02/91	4	92	1	93	-1
				02	RA	F	03/30/89	4	92	1	93	-1
				06	RA	F	08/24/92			1	93	new
				08	RA	RP	09/08/92			3	93	new
				09	RA	F	06/04/92			3	93	new
8	CO	Eagle Mine	Minturn/Redcliff	01	RI/FS	F	12/31/91			4	94	new
				01	RA	PS	09/01/88	4	94	4	94	0
				01	FS	FE	09/25/90	3	92	4	92	-1
8	CO	Lincoln Park	Canon City	01	FS	F	03/11/92			4	93	new
8	CO	Lowry Landfill	Arapahoe County	01	RI/FS	RP	12/07/88	2	93	1	94	-3
				02	RI/FS	RP	10/23/89	4	93	1	94	-1
				03	RI/FS	RP	10/23/89	4	93	1	94	-1
				04	RI/FS	RP	03/25/91	2	93	1	94	-3
				06	RI/FS	RP	09/27/89	2	93	1	94	-3

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8	CO	Marshall Landfill	Boulder County	01	RA	RP	09/16/89	4 91	4 93	-8
				01	RA	RP	09/30/91	2 93	4 93	-2
8	CO	Rocky Flats Plant (USDOE)	Golden	01	RI	FF	02/06/90	1 95	1 95	0
				02	RI	FF	04/12/90	4 95	4 95	0
				04	RI	FF	06/08/90	3 95	3 95	0
				04	RA	FF	04/20/92		2 93	new
				05	RI	FF	04/05/91	4 99	4 99	0
				06	RI	FF	04/19/91	4 99	4 99	0
				07	RI	FF	06/08/90	1 96	1 96	0
				08	RI	FF	05/01/92		4 99	new
				09	RI	FF	06/08/90	3 96	3 96	0
				10	RI	FF	11/26/91		3 96	new
				12	RI	FF	05/08/92		4 99	new
				13	RI	FF	05/15/92		4 99	new
				14	RI	FF	06/26/92		4 99	new
				15	RI	FF	05/27/92		4 99	new
				16	RI	FF	09/24/91		4 99	DNE
8	CO	Rocky Mountain Arsenal	Adams County	02	RI	FF	10/27/87	4 91	4 91	0
				03	RI/FS	FF	02/15/85	2 93	2 95	-8
				04	RI/FS	FF	02/15/85	3 92	1 93	-2
				05	RA	FF	09/10/91	4 92	2 93	-2
				12	RA	FF	11/25/91		3 93	new
				14	RA	FF	07/10/90	1 93	2 93	-1
				17	RA	FF	08/05/91	4 92	3 93	-3
				18	RA	FF	01/02/91	1 93	4 93	-3
				20	RA	FF	10/01/91		4 93	new
				21	RA	FF	11/15/91		2 95	new
				22	RA	FF	11/30/90	1 93	2 95	-9
				25	RA	FF	03/21/91	3 93	1 95	-6
				26	RA	FF	11/15/91		3 94	new
8	CO	Sand Creek Industrial	Commerce City	01	RA	F	09/25/90	3 93	4 94	-5
8	CO	Smuggler Mountain	Pitkin County	01	RA	F	03/29/91	4 93	4 94	-4
				01	RA	F	09/28/90	4 91	4 91	0

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8	MT	Anaconda Co. Smelter	Anaconda	07	RI/FS	RP	09/28/92		3 94	new
				14	RI/FS	RP	09/28/88	2 93	2 95	-8
8	MT	East Helena Site	East Helena	01	RA	RP	03/31/92		3 99	new
				02	RI/FS	RP	06/23/87	2 93	3 94	-5
				03	RI/FS	RP	06/27/87	3 93	3 95	-8
8	MT	Libby Ground Water Contamination	Libby	02	RA	RP	10/18/89	2 95	4 99	-18
8	MT	Milltown Reservoir Sediments	Milltown	02	RI	RP	02/02/90	2 94	4 96	-10
				02	FS	RP	02/02/90	2 94	4 96	-10
8	MT	Montana Pole and Treating	Butte	01	RI/FS	PS	04/24/90	2 93	3 93	-1
8	MT	Silver Bow Creek/Butte Area	Silver Bow/Deer Lodge	01	RI/FS	PS	09/30/91		1 95	DNE
				03	RI/FS	RP	05/04/90	3 94	3 94	0
				04	RA	RP	06/30/92		1 95	new
				07	RI/FS	RP	08/02/91	2 93	2 95	-8
				08	RI/FS	RP	06/30/92		3 96	new
8	ND	Arsenic Trioxide Site	Southeastern ND	01	RA	S	08/11/89	1 94	2 93	3
8	ND	Minot Landfill	Minot	01	RI/FS	RP	09/28/90	2 93	3 93	-1
8	SD	Annie Creek Mine Tailings	Lead	01	RI/FS	RP	05/11/92		1 94	new
8	SD	Ellsworth Air Force Base	Rapid City	06	RI/FS	FF	01/24/92		2 96	new
				06	RI/FS	FF	04/13/90		4 93	DNE
8	SD	Whitewood Creek	Whitewood	01	RA	RP	09/13/91	2 93	4 93	-2
				01	RA	RP	09/30/92		4 94	new
8	SD	Williams Pipe Line Co. Disposal Pit	Sioux Falls	01	RI/FS	RP	04/25/91	1 93	1 94	-4
8	UT	Hill Air Force Base	Ogden	01	RI/FS	FF	06/28/91	2 94	4 94	-2
				02	RI/FS	FF	06/28/91	1 94	1 94	0
				04	RI/FS	FF	12/30/91		1 94	new
				05	RI/FS	FF	08/13/91	3 95	3 95	0

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RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE	PRESENT COMPLETION SCHEDULE	STATUS
8	UT	Midvale Slag	Midvale	01	RI/FS	F	08/07/89	3 93	3 93	0
				02	RI/FS	F	09/10/91	2 95	2 95	0
8	UT	Monticello Mill Tailings (USDOE)	Monticello	01	RA	FF	06/22/92		4 93	new
				01	RA	FF	08/14/91	3 92	1 93	-2
				02	RA	FF	03/25/92		4 93	new
				02	RA	FF	08/31/92		2 94	new
				03	RI/FS	FF	05/31/91	1 98	1 98	0
8	UT	Monticello Radioactively Contaminated Properties	Monticello	01	RA	RP	09/06/84	3 94	3 94	0
				02	RA	RP	11/09/90	2 96	2 96	0
8	UT	Ogden Defense Depot	Ogden	02	RA	FF	11/15/91		1 94	new
				02	RA	FF	02/03/92		4 97	new
8	UT	Petrochem Recycling Corp./Ekotek Plant	Salt Lake City	01	RI/FS	RP	07/10/92		2 95	new
8	UT	Sharon Steel Corp. (Midvale Tailings/Smelters)	Midvale	01	RI/FS	F*	12/31/84	4 92	4 92	0
				01	RI/FS	RP	12/31/84	4 92	4 92	0
				02	RA	F	06/25/92		1 93	new
8	UT	Tooele Army Depot (North Area)	Tooele	01	RI/FS	FF	12/31/91		3 94	new
				01	RI/FS	FF	08/16/90	3 94	3 94	0
				02	RI/FS	FF	12/31/91		3 95	new
				05	RI/FS	FF	09/16/91	1 93	1 95	-8
8	UT	Utah Power & Light/American Barrel Co.	Salt Lake City	01	RI/FS	RP	08/10/90	4 93	4 93	0
8	WY	F.E. Warren Air Force Base	Cheyenne	01	RI/FS	FF	10/22/91		3 94	new
				05	RI/FS	FF	06/23/92		3 94	new
9	AZ	Apache Powder Co.	St. David	01	RI/FS	RP	10/05/89	2 93	3 94	-5
9	AZ	Indian Bend Wash Area	Scottsdale/Tmpe/Phnx	01	RA	RP	02/20/92		4 95	new
				02	RA	RP	06/30/92		1 95	new
				03	RI/FS	F	03/14/88	2 93	1 94	-3
				03	RI	MR	03/14/88		1 94	DNE
				07	RI	MR	09/26/90	2 93	4 93	-2
				07	FS	F	06/01/92		4 93	new

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RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE	PRESENT COMPLETION SCHEDULE	STATUS
9	AZ	Luke Air Force Base	Glendale	01	RI/FS	FF	09/27/90	1 95	1 96	-4
				02	RI/FS	FF	09/27/90	1 94	1 94	0
9	AZ	Motorola, Inc. (52nd Street Plant)	Phoenix	02	RI/FS	PS	06/20/89	3 92	4 94	-9
9	AZ	Phoenix-Goodyear Airport Area	Goodyear	02	RA	RP	12/09/91		4 93	new
9	AZ	Tucson International Airport Area	Tucson	01	RA	RP	12/12/91		2 94	new
				02	RI/FS	RP	12/11/90	1 94	4 94	-3
9	AZ	Williams Air Force Base	Chandler	01	RI/FS	FF	09/21/90	2 94	2 94	0
9	AZ	Yuma Marine Corps Air Station	Yuma	01	RI/FS	FF	09/30/91	4 95	4 96	-4
				02	RI/FS	FF	09/30/91	4 95	4 96	-4
9	CA	Advanced Micro Devices, Inc.	Sunnyvale	01	RA	PS	09/11/91		2 93	DNE
9	CA	Aerojet General Corp.	Rancho Cordova	01	RI/FS	RP	09/08/88	4 96	4 96	0
				02	FS	RP	12/12/91		4 94	new
9	CA	Applied Materials	Santa Clara	02	RI/FS	PS	09/28/90		4 94	DNE
9	CA	Atlas Asbestos Mine	Fresno County	02	RA	RP	10/16/89	4 91	2 93	-6
9	CA	Barstow Marine Corps Logistics Base (Nebo Area)	Barstow	01	RI/FS	FF	09/28/90	4 93	3 96	-11
				02	RI/FS	FF	09/28/90	1 94	1 96	-8
				03	RI/FS	FF	09/28/90		2 97	DNE
9	CA	Beckman Instruments (Porterville Plant)	Porterville	01	RA	RP	12/17/90	2 93	4 93	-2
9	CA	Brown & Bryant, Inc. (Arvin Plant)	Arvin	01	RI/FS	EP	05/03/90	3 93	4 93	-1

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RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
9	CA	Camp Pendleton Marine Corps Base	San Diego County	01	RI/FS	FF	09/28/90	2	94	1	95	-3
				02	RI/FS	FF	09/28/90	3	94	3	95	-4
				03	RI/FS	FF	09/28/90	3	95	4	95	-1
9	CA	Castle Air Force Base	Merced	01	RI/FS	FF	07/21/89	3	95	1	96	-2
				03	RI/FS	FF	05/29/91	1	93	3	93	-2
9	CA	Coalinga Asbestos Mine	Coalinga	02	RA	RP	10/16/89	4	91	2	93	-6
9	CA	Del Amo Facility	Los Angeles	01	RI/FS	RP	05/07/92			3	95	new
				02	RI/FS	RP	05/07/92			3	94	new
9	CA	Edwards Air Force Base	Kern County	01	RI/FS	FF	09/26/90	3	99	3	99	0
				02	RI/FS	FF	09/26/90	3	96	3	96	0
9	CA	El Toro Marine Corps Air Station	El Toro	01	RI/FS	FF	09/28/90	4	93	2	96	-10
				02	RI/FS	FF	09/28/90	2	94	3	96	-9
				03	RI/FS	FF	09/28/90	3	94	3	96	-8
				04	RI/FS	FF	09/28/90			3	96	DNE
9	CA	Fort Ord	Marina	01	RI/FS	FF	07/23/90	2	97	3	97	-1
				02	RI/FS	FF	07/23/90	3	93	4	94	-5
				03	RI/FS	FF	07/23/90	4	93	2	94	-2
9	CA	Fresno Municipal Sanitary Landfill	Fresno	01	RI/FS	RP	09/20/90	3	93	3	93	0
9	CA	George Air Force Base	Victorville	01	RI/FS	FF	09/21/90	1	95	3	95	-2
				02	RI/FS	FF	09/21/90	1	93	4	93	-3
				03	RI/FS	FF	09/21/90	1	94	4	93	1
				04	RI/FS	FF	08/27/91	3	94	2	95	-3
9	CA	Hewlett Packard (620-640 Page Mill Rd.)	Palo Alto	01	RI/FS	PS	03/16/89	2	93	2	94	-4
9	CA	Hexcel Corp.	Livermore	01	RI/FS	PS	05/16/90	2	93	1	94	-3

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RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
9	CA	Industrial Waste Processing	Fresno	01	RI/FS	F	09/24/92			4	94	new
				01	RI/FS	PS	12/18/87			3	93	DNE
9	CA	Iron Mountain Mine	Redding	03	RI/FS	F	08/06/92			3	93	new
9	CA	J.H. Baxter & Co.	Weed	01	RA	RP	07/16/92			2	94	new
9	CA	Koppers Co., Inc. (Oroville Plant)	Oroville	01	RA	RP	01/31/92			2	93	new
9	CA	Lawrence Livermore National Laboratory	Livermore	01	RI/FS	FF	06/29/92			3	94	new
				02	RI/FS	FF	06/29/92			3	94	new
				03	RI/FS	FF	06/29/92			1	95	new
				04	RI/FS	FF	06/29/92			2	95	new
				05	RI/FS	FF	06/29/92			1	96	new
				06	RI/FS	FF	06/29/92			1	96	new
9	CA	Lawrence Livermore National Laboratory (USDOE)	Livermore	01	RA	FF	08/05/92			1	96	new
9	CA	Liquid Gold Oil Corp.	Richmond	01	RI/FS	PS	09/20/83	1	93	3	93	-2
9	CA	Lorentz Barrel & Drum Co.	San Jose	01	RI/FS	F	02/17/88	1	93	4	93	-3
9	CA	Louisiana-Pacific Corp.	Oroville	01	RI	EP	02/08/88	4	91	4	91	0
				01	RA	RP	05/26/92			1	94	new
9	CA	MGM Brakes	Cloverdale	01	RA	RP	01/29/91	3	93	1	94	-2
9	CA	March Air Force Base	Riverside	01	RI/FS	FF	09/27/90	1	97	1	97	0
				02	RI/FS	FF	09/27/90	4	94	4	94	0
				03	RI/FS	FF	08/06/91	3	95	3	95	0
				04	RI/FS	FF	01/24/92			2	96	new
9	CA	Mather Air Force Base (AC & W Disposal Site)	Sacramento	01	RI/FS	FF	06/06/91	1	94	3	94	-2
				02	RI/FS	FF	07/21/89	4	93	1	94	-1
				03	RI/FS	FF	07/21/89	3	92	2	93	-3

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
9	CA	McClellan Air Force Base (Ground Water Contamination)	Sacramento	01	RI/FS	FF	07/21/89	4	99	4	99	0
				02	RI/FS	FF	07/21/89	1	95	1	95	0
				04	RI/FS	FF	07/21/89	4	97	4	97	0
				05	RI/FS	FF	08/21/90	4	99	4	99	0
9	CA	McColl	Fullerton	01	RA	S	06/11/84	4	91	4	91	0
				02	RI/FS	F	02/03/86	1	94	4	93	1
				04	RI/FS	F	09/27/90	4	95	4	95	0
9	CA	McCormic and Baxter Creosoting Co.	Stockton	01	RI/FS	F	06/11/92			3	94	new
9	CA	Modesto Ground Water Contamination	Modesto	01	RI/FS	F	03/21/91	3	93	2	94	-3
9	CA	Moffett Naval Air Station	Sunnyvale	01	RI/FS	FF	08/08/89	3	97	3	94	12
				02	RI/FS	FF	08/08/89	1	94	1	94	0
				03	RI/FS	FF	08/08/89	1	93	4	94	-7
				04	RI/FS	FF	08/08/89			1	94	DNE
				05	RI/FS	FF	08/08/89			1	95	DNE
				06	RI/FS	FF	07/06/92			4	95	new
				07	RI/FS	FF	08/08/89			4	96	DNE
9	CA	Montrose Chemical Corp.	Torrance	01	RI/FS	RP	10/10/86	1	93	4	93	-3
9	CA	National Semiconductor Corp.	Santa Clara	02	RI/FS	PS	04/19/89			3	94	DNE
9	CA	Newmark Ground Water Contamination	San Bernadino	01	RI/FS	F	06/28/90	1	93	3	93	-2
				02	RI/FS	F	09/25/92			2	95	new
9	CA	Norton Air Force Base	San Bernardino	01	RI/FS	FF	06/29/89	4	95	4	95	0
				02	RI/FS	FF	06/29/89	4	92	3	93	-3
9	CA	Operating Industries, Inc., Landfill	Monterey Park	01	RI/FS	F	09/15/89	4	93	2	94	-2
				02	RA	RP	07/18/91	2	94	2	94	0
				04	RA	RP	05/11/89	4	94	4	94	0
9	CA	Ralph Gray Trucking Co.	Westminster	01	RI/FS	F	08/30/92			1	94	new

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RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
9	CA	Riverbank Army Ammunition Plant	Riverbank	01	RI/FS	FF	04/05/90	3	93	4	93	-1
9	CA	Sacramento Army Depot	Sacramento	01	RI/FS	FF	12/16/88	4	96	4	96	0
				02	RA	FF	02/16/90	4	99	4	99	0
				03	RA	FF	08/05/92			3	94	new
				05	RI/FS	FF	11/13/90	1	93	3	93	-2
9	CA	San Fernando Valley (Area 1)	Los Angeles	01	RI/FS	S	08/16/85	4	93	1	95	-5
9	CA	San Fernando Valley (Area 2)	Los Angeles/Glendale	01	RI/FS	S	08/16/85	4	93	3	95	-7
				02	RI/FS	S	09/06/89	1	93	2	93	-1
				03	RI/FS	S	09/06/89			3	93	DNE
9	CA	San Fernando Valley (Area 3)	Glendale	01	RI/FS	S	08/16/85	4	93	1	95	-5
9	CA	San Fernando Valley (Area 4)	Los Angeles	01	RI/FS	S	08/16/85	4	93	1	95	-5
				02	RI/FS	F	09/28/92			4	94	new
9	CA	San Gabriel Valley (Area 1)	El Monte	01	RI/FS	F	06/13/84	4	99	3	94	21
				02	RI/FS	F	04/01/87	4	92	2	93	-2
9	CA	San Gabriel Valley (Area 2)	Baldwin Park Area	03	RI/FS	F	08/01/87	4	92	3	93	-3
9	CA	Selma Treating Co.	Selma	01	RA	F	07/22/92			4	96	new
				02	RA	F	09/29/92			1	94	new
9	CA	Sharpe Army Depot	Lathrop	01	RI/FS	FF	03/16/89	3	93	3	94	-4
9	CA	South Bay Asbestos Area (Alviso Dumping Area)	Alviso	02	RA	RP	05/11/92			4	93	new
9	CA	Stoker Company	Imperial	01	RI/FS	F	05/01/92			2	95	new

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RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE	PRESENT COMPLETION SCHEDULE	STATUS
9	CA	Stringfellow	Glen Avon Heights	01	RI/FS	S	10/01/90	4 93	4 95	-8
9	CA	Sulphur Bank Mercury Mine	Clear Lake	01	RI/FS	EP	09/28/90	1 94	2 94	-1
				02	RI/FS	F	11/18/91		1 96	new
				03	RI/FS	EP	09/28/90		3 94	DNE
9	CA	T.H. Agriculture & Nutrition Co. (Thompson-Haywood Chem	Fresno	01	RI/FS	PS	02/06/87	1 93	1 94	-4
9	CA	TRW Microwave, Inc. (Building 825)	Sunnyvale	01	RA	PS	09/11/91		2 93	DNE
				01	RI/FS	PS	04/19/89	4 91	4 91	0
9	CA	Tracy Defense Depot	Tracy	01	RI/FS	FF	06/27/91	4 94	4 96	-8
				02	RI/FS	FF	06/27/91	3 93	4 93	-1
9	CA	Travis Air Force Base	Solano County	01	RI/FS	FF	09/28/90	2 94	2 94	0
9	CA	Treasure Island Naval Station - Hunter's Point Annex	San Francisco	01	RI/FS	FF	09/28/90	4 94	4 94	0
				02	RI/FS	FF	09/28/90	1 94	1 94	0
				03	RI/FS	FF	09/28/90	2 94	2 94	0
				04	RI/FS	FF	10/01/90	2 94	2 94	0
				05	RI/FS	FF	01/22/91	4 94	4 94	0
9	CA	United Heckathorn Co.	Richmond	01	RI/FS	F	09/26/91	3 93	3 94	-4
9	CA	Waste Disposal, Inc.	Santa Fe Springs	01	RI/FS	F	12/22/87	2 93	4 93	-2
9	CA	Watkins-Johnson Co. (Stewart Division)	Scotts Valley	01	RA	RP	07/16/91	4 93	4 94	-4
9	CA	Western Pacific Railroad Co.	Oroville	01	RI/FS	F	09/29/92		2 95	new
9	HI	Schofield Barracks	Oahu	01	RI/FS	FF	09/27/91	2 95	2 95	0
				02	RI/FS	FF	09/27/91	4 95	4 95	0
				03	RI/FS	FF	09/27/91	3 96	3 96	0
				04	RI/FS	FF	09/27/91		2 95	DNE

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9	NV	Carson River Mercury Site (Trust Territories PC)	Lyon/Churchill County	01	RI/FS	F	09/28/90	4 93	4 94	-4
10	AK	Alaska Battery Enterprise	Fairbanks N Star Bor	01	RI/FS	F	05/04/90	1 93	2 93	-1
10	AK	Arctic Surplus	Fairbanks	01	RI/FS	RP	07/24/92		2 95	new
10	AK	Eielson Air Force Base	Fairbanks N Star Borough	02	RI/FS	FF	06/17/91	2 93	2 94	-4
				03	RI/FS	FF	05/06/92		3 95	new
				04	RI/FS	FF	05/06/92		3 95	new
				05	RI/FS	FF	05/06/92		3 95	new
				07	RI/FS	FF	05/21/91	4 95	2 96	-2
				09	RI/FS	FF	06/17/91	3 93	4 94	-5
10	AK	Elmendorf Air Force Base	Greater Anchorage Borough	01	RI/FS	FF	01/01/92	4 92	1 94	-5
				02	RI/FS	FF	04/01/92		4 94	new
				05	RI/FS	FF	04/15/92		4 94	new
10	AK	Fort Wainright	Fairbanks N Star Borough	03	RI/FS	FF	09/15/92		4 95	new
10	AK	Standard Steel and Metals Salvage Yard	Anchorage	01	RI/FS	FF	09/26/92		1 95	new
10	ID	Arrcom (Drexler Enterprises)	Rathdrum	01	RI/FS	F	05/01/87	4 92	3 92	1
10	ID	Eastern Michaud Flats Contamination	Pocatello	01	RI/FS	RP	05/30/91	3 94	3 94	0
10	ID	Idaho National Engineering Lab (USDOE)	Idaho Falls	01	RI/FS	FF	12/20/91		1 95	new
				14	RI/FS	FF	12/09/91		2 94	new
				15	RI/FS	FF	12/27/91		1 95	new
				18	RI/FS	FF	12/09/91		3 93	new
				19	RI/FS	FF	09/25/92		1 95	new
10	ID	Kerr-McGee Chemical Corp. (Soda Springs Plant)	Soda Springs	01	RI/FS	RP	09/20/90	4 94	4 94	0

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10	ID	Monsanto Chemcial Co. (Soda Springs Plant)	Soda Springs	01	RI/FS	RP	03/19/91	2 94	4 94	-2
10	ID	Mountain Home Air Force Base	Mountain Home	03	RI/FS	FF	05/12/92		3 95	new
10	ID	Mountain Home Airforce Base	Mountain Home	01	RI/FS	FF	01/16/92		3 93	new
10	ID	Pacific Hide & Fur Recycling Co.	Pocatello	01	RA	RP	09/22/89	4 93	2 93	2
10	OR	Allied Plating, Inc.	Portland	01	RI/FS	F	09/24/87	4 92	3 93	-3
10	OR	Gould, Inc.	Portland	01	RA	RP	03/02/92		4 95	new
10	OR	Joseph Forests Products	Joseph	01	RI/FS	F	09/21/89	4 92	4 92	0
10	OR	Martin-Marietta Products	The Dalles	01	RA	RP	05/15/90	3 92	4 93	-5
10	OR	Teledyne Wah Chang	Albany	01	RI/FS	RP	05/05/87	2 93	4 93	-2
				02	RA	RP	11/06/91		2 93	new
10	OR	Umatilla Army Depot (Lagoons)	Hermiston	03	RI/FS	FF	01/26/90	1 93	4 93	-3
				04	RI/FS	FF	01/26/90	1 93	1 94	-4
				05	RI/FS	FF	01/26/90	1 93	2 93	-1
				06	RI/FS	FF	01/26/90	1 93	4 93	-3
				07	RI/FS	FF	01/26/90		4 93	DNE
10	OR	United Chrome Products, Inc.	Corvallis	01	RA	F	09/24/87	1 92	1 92	0
10	WA	American Crossarm & Conduit Co.	Chehalis	01	RI/FS	F	07/12/89	1 93	2 93	-1
10	WA	Bangor Naval Submarine Base	Silverdale	01	RI/FS	FF	02/16/90	4 92	4 93	-4
				02	RI/FS	FF	02/16/90	1 94	1 94	0
				03	RI/FS	FF	06/29/90	4 93	1 94	-1
				04	RI/FS	FF	07/30/90	4 93	1 94	-1
				05	RI/FS	FF	09/02/90	1 94	1 94	0
				06	RI/FS	FF	10/14/91		2 94	new

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10	WA	Bonneville Power Administration	Vancouver	01	RI/FS	FF	05/15/90	1	93	2	93	-1
		Ross Complex		02	RI/FS	FF	05/15/90			1	94	DNE
10	WA	Colbert Landfill	Colbert	01	RA	MR	08/28/89	4	93	4	93	0
10	WA	Commencement Bay, Near Shore/Tide Flats	Pierce County	01	RA	RP	03/20/92			3	93	new
				02	RI/FS	RP	09/10/86	3	93	3	94	-4
				04	RI/FS	F	09/27/89	4	92	3	93	-3
				05	RA	PS	11/12/91			2	95	new
				05	RA	PS	01/16/90	1	94	2	96	-9
				05	RA	PS	11/16/90	1	93	1	94	-4
				05	RA	PS	09/30/89	4	94	4	95	-4
				07	RA	RP	06/25/92			1	95	new
10	WA	Commencement Bay, South Tacoma Channel	Tacoma	01	RA	F	07/19/90	4	92	2	93	-2
				02	RI/FS	RP	10/15/90	4	93	1	94	-1
				03	RA	RP	03/15/92			1	94	new
10	WA	Commencement Bay, South Takoma Channel	Tacoma	03	RA	RP	07/20/90	4	92	4	92	0
10	WA	FMC Corp. (Yakima Pit)	Yakima	01	RA	RP	04/23/92			4	93	new
10	WA	Fairchild Air Force Base (4 Waste Area)	Spokane County	01	RI/FS	FF	03/27/90	1	93	2	93	-1
				02	RI/FS	FF	03/27/90	4	93	4	93	0
				03	RI/FS	FF	09/15/92			1	95	new
10	WA	Fort Lewis Logistics Center	Tillicum	01	RA	FF	01/15/92			4	97	new
				02	RI/FS	FF	12/01/91	1	94	1	94	0
10	WA	Hanford 100-Area (USDOE)	Benton County	01	RI/FS	FF	06/30/89	2	93	3	95	-9
				01	RI/FS	FF	05/15/89	2	94	4	93	2
				02	RI/FS	FF	06/30/89	2	93	3	95	-9
				03	RI/FS	FF	10/27/89	3	93	3	95	-8
				04	RI/FS	FF	04/09/90	2	94	2	95	-4
				05	RI/FS	FF	04/09/90	2	95	2	95	0
				06	RI/FS	FF	06/05/90	2	94	1	96	-7
				07	RI/FS	FF	06/05/90	2	95	1	96	-3
				08	RI/FS	FF	10/12/90	3	93	2	96	-11
				09	RI/FS	FF	10/12/90	2	95	4	95	-2
				10	RI/FS	FF	04/15/91			4	95	DNE

APPENDIX A

STATUS OF REMEDIAL INVESTIGATIONS, FEASIBILITY STUDIES,
AND REMEDIAL ACTIONS IN PROGRESS ON SEPTEMBER 30, 1992

RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE		PRESENT COMPLETION SCHEDULE		STATUS
				14	RI/FS	FF	04/15/91			3	95	DNE
10	WA	Hanford 200-Area (USDOE)	Benton County	01	RI/FS	FF	05/15/89	2	94	1	94	1
				02	RI/FS	FF	08/31/92			2	97	new
10	WA	Hanford 300-Area (USDOE)	Benton County	01	RI/FS	FF	05/15/89	3	95	2	95	1
				02	RI/FS	FF	09/27/89	2	96	2	96	0
10	WA	Harbor Island (Lead)	Seattle	01	RI/FS	F	09/07/88	4	92	3	94	-7
				03	RI/FS	RP	09/14/90	1	93	2	94	-5
10	WA	Lakewood Site	Lakewood	01	RA	F	09/24/87	4	92	2	93	-2
10	WA	Naval Air Station, Whidbey Island (Ault Field)	Whidbey Island	01	RI/FS	FF	10/16/90	4	92	4	93	-4
				02	RI/FS	FF	06/30/91	4	93	1	94	-1
				03	RI/FS	FF	12/13/91			3	94	new
10	WA	Naval Air Station, Whidbey Island (Seaplane Base)	Whidbey Island	01	RI/FS	FF	01/02/91	3	93	3	93	0
10	WA	Naval Undersea Warfare Engineering Stn. (4 Waste Area)	Keyport	01	RI/FS	FF	07/17/90	2	93	2	94	-4
10	WA	Northside Landfill	Spokane	01	RA	RP	03/16/92			2	94	new
10	WA	Northwest Transformer (South Harkness St.)	Everson	01	RI/FS	RP	06/18/92			1	94	new
				01	RA	RP	09/30/92			4	93	new
10	WA	Pasco Sanitary Landfill	Pasco	01	RI	SE	08/05/92			4	93	new
10	WA	Queen City Farms	Maple Valley	01	RI/FS	RP	05/06/88	1	93	1	93	0
10	WA	Silver Mountain Mine	Loomis	01	RA	F	04/03/92			3	93	new
10	WA	Vancouver Water Station #4 Contamination	Vancouver	01	RI/FS	F	04/02/92			2	95	new

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STATUS OF REMEDIAL INVESTIGATIONS, FEASIBILITY STUDIES,
AND REMEDIAL ACTIONS IN PROGRESS ON SEPTEMBER 30, 1992

RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	ACTIVITY	LEAD	FUNDING START	PREVIOUS COMPLETION SCHEDULE	PRESENT COMPLETION SCHEDULE	STATUS
10	WA	Western Processing Co., Inc.	Kent	02	RA	RP	07/06/87	1 92	1 92	0
10	WA	Wycoff Co./Eagle Harbor	Bainbridge Island	01	RI/FS	F	09/03/87	3 92	2 93	-3
				02	RI/FS	F	09/16/92		1 95	new

Appendix B
Remedial Designs in Progress on September 30, 1992

This appendix lists the remedial designs in progress at the end of FY92 and their estimated completion schedule. Activities at multiple operable units, as well as first and subsequent activities, are listed.

- **RG** — EPA Region in which the site is located.
- **ST** — State in which the site is located.
- **Site Name** — Name of the site, as listed on the National Priorities List (NPL).
- **Location** — Location of the site, as listed on the NPL.
- **Operable Unit** — Operable unit at which the corresponding remedial activity is occurring; a single site may include more than one operable unit.
- **Lead** — The entity leading the activity, as follows:

  EP: Fund-financed with EPA employees performing the project, not contractors;

  F: Fund-financed and federal-lead by the Superfund remedial program;

  FE: EPA enforcement program-lead;

  FF: Federal facility-lead;

  MR: Mixed funding; monies from both the Fund and potentially responsible parties (PRPs);

  PRP: PRP-financed and conducted;

  PS: PRP-financed work performed by the PRP under a state order (may include federal financing or federal oversight under an enforcement document);

  S: State-lead and Fund-financed; and

  SE: State enforcement-lead (may include federal financing).

  Remaining terms used in the CERCLA Information System (CERCLIS) database, **O** (other), **SN** (state-lead and state-financed, no Fund money), and **SR** (state-ordered PRP response activities), are excluded from this status report because they do not include federal financing.

- **Funding Start** — The date on which funds were allocated for the activity.
- **Present Completion Schedule** — The quarter and fiscal year of the planned completion date for the activity, as of September 30, 1992. This information was compiled from CERCLIS on November 11, 1992.

Progress Toward Implementing Superfund: Fiscal Year 1992

APPENDIX B

STATUS OF REMEDIAL DESIGNS IN PROGRESS ON SEPTEMBER 30, 1992

RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE
1	CT	Kellog-Deering Well Field	Norwalk	02	RP	03/14/91	1 95
1	CT	Laurel Park Inc. (once listed as Laurel Park Landfill)	Naugatuck Borough	02	RP	04/24/91	1 94
1	MA	Baird & McGuire	Holbrook	04	S	09/24/91	1 94
1	MA	Charles-George Reclamation Trust Landfill	Tyngsborough	04	F	09/30/88	3 94
1	MA	Groveland Wells	Groveland	01	F	09/24/92	2 94
1	MA	Hocomonco Pond	Westborough	02	RP	08/07/87	3 93
1	MA	Iron Horse Park	Billerica	02	F	09/21/92	4 93
1	MA	Norwood PCBs	Norwood	01	F	09/28/90	1 95
1	MA	Nyanza Chemical Waste Dump	Ashland	02	F	04/08/92	2 94
1	MA	Re-Solve, Inc.	Dartmouth	02 03	MR MR	03/30/89 03/30/89	4 93 1 95
1	MA	Rose Disposal Pit	Lanesboro	01	RP	08/16/89	3 93
1	MA	Silresim Chemical Corp.	Lowell	01	F	09/29/92	4 94
1	MA	Sullivan's Ledge	New Bedford	01	RP	03/15/91	2 95
1	MA	W.R. Grace & Co., Inc.	Acton	01	RP	05/18/90	4 93
1	MA	Wells G&H	Woburn	01	RP	04/27/90	2 94
1	ME	Brunswick Naval Air Station	Brunswick	01 02	FF FF	07/10/92 07/10/92	4 93 4 93
1	ME	O'Connor Co.	Augusta	01	RP	12/14/90	4 94

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STATUS OF REMEDIAL DESIGNS IN PROGRESS ON SEPTEMBER 30, 1992

RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE
1	ME	Pinette's Salvage Yard	Washburn	02	F	09/13/89	1 94
1	ME	Union Chemical Co., Inc.	South Hope	01	RP	12/24/91	2 94
1	NH	Auburn Road Landfill	Londonderry	02	RP	09/30/90	4 94
				03	RP	09/30/90	2 94
1	NH	Coakley Landfill	North Hampton	01	RP	06/19/92	2 94
1	NH	Dover Municipal Landfill	Dover	01	RP	01/22/92	1 95
1	NH	Kearsarge Metallurgical Corp. (once listed as Kearsage Metallurgical Corp.)	Conway	02	F	09/27/91	2 93
1	NH	Mottolo Pig Farm	Raymond	01	F	03/05/92	3 93
1	NH	Ottati & Goss)	Kingston	02	RP	03/15/89	1 95
				03	F	09/20/90	1 95
				04	F	09/20/90	1 94
1	NH	South Municipal Water Supply Well	Peterborough	01	RP	09/04/90	2 93
1	NH	Tinkham Garage	Londonderry	01	RP	09/23/88	4 93
				02	RP	09/23/88	4 94
1	RI	Davis Liquid Waste	Smithfield	02	F	07/11/88	2 94
1	RI	Landfill & Resource Recovery, Inc. (L&RR)	North Smithfield	01	RP	11/16/90	1 94
1	RI	Newport Naval Education/Training Center	Newport	02	FF	09/29/92	1 94
1	RI	Stamina Mills, Inc. (once listed as Forestdale - Stamina Mills, Inc.)	North Smithfield	01	RP	08/14/91	4 94
1	VT	Old Springfield Landfill	Springfield	02	RP	12/13/91	2 93
2	NJ	A. O. Polymer	Sparta Township	01	RP	04/20/92	1 94

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STATUS OF REMEDIAL DESIGNS IN PROGRESS ON SEPTEMBER 30, 1992

RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE
2	NJ	Asbestos Dump	Millington	01	F	09/30/92	1 94
				02	F	02/10/92	2 93
2	NJ	Burnt Fly Bog	Marlboro Township	02	S	09/29/89	1 95
2	NJ	Caldwell Trucking Co.	Fairfield	02	F	05/16/91	1 95
2	NJ	Chemical Leaman Tank Lines, Inc.	Bridgeport	01	RP	01/03/91	2 95
2	NJ	Chemsol, Inc.	Piscataway	02	RP	04/15/92	4 93
2	NJ	Ciba-Geigy Corp. (TOMS RIVER CHEMICAL)	Toms River	01	RP	06/01/89	4 93
2	NJ	Cinnaminson Township (Block 702) Ground Water Contamination	Cinnaminson Township	01	RP	07/09/91	4 98
2	NJ	Combe Fill South Landfill	Chester Township	01	S	06/26/87	4 93
2	NJ	Curcio Scrap Metal, Inc.	Saddle Brook Township	01	RP	12/24/91	3 93
2	NJ	DeRenewal Chemical Co.	Kingwood Township	01	F	09/30/89	1 94
2	NJ	Diamond Alkali Co.	Newark	01	RP	12/14/89	2 94
2	NJ	Ewan Property	Shamong Township	01	RP	10/13/89	3 94
2	NJ	Federal Aviation Administration Technical Center	Atlantic County	02	FF	03/31/91	1 94
2	NJ	GEMS Landfill	Gloucester Township	01	S	05/22/86	4 93
2	NJ	Garden State Cleaners Co.	Minotola	01	F	03/30/92	3 93
				02	F	03/30/92	1 95
2	NJ	Glen Ridge Radium Site	Glen Ridge	01	F	05/25/89	1 93
				03	F	09/26/90	1 98

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STATUS OF REMEDIAL DESIGNS IN PROGRESS ON SEPTEMBER 30, 1992

RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE
2	NJ	Imperial Oil Co., Inc./Champion Chemicals	Morganville	01	S	09/30/91	3 93
2	NJ	Kin-Buc Landfill	Edison Township	01	RP	09/30/88	4 93
2	NJ	King of Prussia	Winslow Township	01	RP	05/02/91	1 94
2	NJ	Lang Property	Pemberton Township	01	F	03/20/87	2 93
2	NJ	Lipari Landfill	Pitman	03	F	09/29/88	3 93
2	NJ	Lone Pine Landfill	Freehold Township	02	RP	06/26/92	1 94
2	NJ	Mannheim Avenue Dump	Galloway Township	01	RP	06/14/91	1 94
2	NJ	Metaltec/Aerosystems	Franklin Borough	02	F	03/29/91	2 94
2	NJ	Montclair/West Orange Radium Site	Montclair/West Orange	01 03	F F	05/25/89 09/26/90	1 93 1 98
2	NJ	Montgomery Township Housing Development	Montgomery Township	02	S	03/24/89	3 93
2	NJ	Myers Property	Franklin Township	01	RP	05/12/92	1 95
2	NJ	NL Industries	Pedricktown	02	RP	05/21/92	2 93
2	NJ	Nascolite Corp.	Millville	01 02	RP F	01/16/91 09/27/91	3 94 1 94
2	NJ	Pepe Field	Boonton	01	F	09/30/91	4 93
2	NJ	Price Landfill	Pleasantville	02	S	06/26/87	1 94
2	NJ	Reich Farms	Pleasant Plains	01	RP	04/05/90	1 94
2	NJ	Rocky Hill Municipal Well	Rocky Hill Borough	01	S	03/24/89	3 93
2	NJ	Roebling Steel Co.	Florence	02	F	09/25/91	3 94

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STATUS OF REMEDIAL DESIGNS IN PROGRESS ON SEPTEMBER 30, 1992

RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE
2	NJ	Sharkey Landfill	Parsippany/Troy Hills	01	S	03/31/87	1 95
2	NJ	South Jersey Clothing Co.	Minotola	01	F	03/30/92	1 94
				02	F	03/30/92	1 95
2	NJ	Vineland Chemical Co., Inc.	Vineland	01	F	09/30/89	1 94
				01	F	10/02/89	2 94
2	NJ	Waldick Aerospace Devices, Inc.	Wall Township	02	F	06/28/91	1 94
2	NJ	Williams Property	Swainton	01	S	09/30/88	3 93
2	NY	American Thermostat Co.	South Cairo	02	F	09/30/90	2 93
2	NY	Applied Environmental Services	Glenwood Landing	01	PS	09/24/92	4 94
2	NY	Byron Barrel & Drum	Byron	01	RP	09/25/90	1 95
2	NY	Circuitron Corp.	East Farmingdale	01	F	06/24/91	1 94
2	NY	Claremont Polychemical	Old Bethpage	01	F	09/30/92	3 95
				01	F	09/28/90	4 93
2	NY	Colesville Municipal Landfill	Town of Colesville	01	PS	04/01/91	1 94
2	NY	Endicott Village Well Field	Village of Endicott	03	RP	01/24/92	2 93
2	NY	Fulton Terminals	Fulton	01	RP	11/28/90	1 94
2	NY	General Motors (Central Foundry Division)	Massena	01	RP	07/01/92	3 95
				02	RP	09/09/92	3 95
2	NY	Genzale Plating Co.	Franklin Square	01	F	09/25/91	3 94
2	NY	Hooker (102nd Street)	Niagara Falls	01	RP	10/22/91	1 94
2	NY	Hooker (South Area)	Niagara Falls	01	RP	09/21/90	4 95
				01	RP	12/01/86	2 94
				01	RP	01/31/91	1 94

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RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE
2	NY	Islip Municipal Sanitary Landfill	Islip	01	PS	09/30/92	3 94
2	NY	Kentucky Avenue Well Field	Horseheads	02	RP	08/29/91	1 94
2	NY	Ludlow Sand & Gravel	Clayville	01	PS	11/12/89	2 94
2	NY	Mattiace Petrochemical Co., Inc.	Glen Cove	01	F	09/30/91	2 93
				03	F	09/30/92	3 94
				04	F	09/30/92	2 93
2	NY	Port Washington Landfill	Port Washington	01	RP	09/28/90	2 93
				01	RP	09/28/90	1 94
				01	RP	09/28/90	1 96
2	NY	Preferred Plating Corp.	Farmingdale	02	F	09/30/92	3 93
2	NY	Ramapo Landfill	Ramapo	01	PS	04/16/92	2 94
2	NY	Sarney Farm	Amenia	01	F	03/29/91	1 94
2	NY	Solvent Savers	Lincklaen	01	RP	07/02/91	1 95
2	NY	Vestal Water Supply Well 1-1	Vestal	02	F	03/28/91	1 94
				02	RP	04/18/91	1 94
2	NY	Warwick Landfill	Warwick	01	RP	04/20/92	3 94
2	PR	Fibers Public Supply Wells	Jobos	01	RP	09/25/92	4 94
2	PR	Frontera Creek	Rio Abajo	01	RP	08/19/92	4 94
2	PR	Upjohn Facility	Barceloneta	01	RP	05/09/89	4 93
3	DE	Coker's Sanitation Service Landfills	Kent County	01	RP	03/05/91	3 93
3	DE	Delaware Sand & Gravel-Llangollen/Army Creek Landfill)	New Castle County	01	RP	06/26/92	2 94
3	DE	Halby Chemical Co.	New Castle	01	RP	03/16/92	4 93

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STATUS OF REMEDIAL DESIGNS IN PROGRESS ON SEPTEMBER 30, 1992

RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE
3	DE	Harvey & Knott Drum, Inc.	Kirkwood	02	RP	09/14/87	2 93
3	DE	NCR Corp. (Millsboro Plant)	Millsboro	01	RP	08/04/92	2 94
3	MD	Aberdeen Proving Ground (Edgewood Area)	Edgewood	05	FF	11/04/91	2 93
3	MD	Limestone Road	Cumberland	01	RP	04/13/90	4 93
3	MD	Mid-Atlantic Wood Preservers, Inc.	Harmans	01	RP	03/18/92	3 93
3	MD	Sand, Gravel & Stone	Elkton	03	RP	01/05/89	3 93
				04	RP	02/21/92	4 93
3	PA	Avco Lycoming (Williamsport Division)	Williamsport	01	RP	05/08/92	3 94
3	PA	Bally Ground Water Contamination	Bally Borough	01	RP	09/25/91	1 95
3	PA	Bendix Flight Systems Division	Bridgewater Township	03	RP	04/19/90	1 93
3	PA	Blosenski Landfill	West Caln Township	03	F	02/14/90	1 93
				04	F	02/14/90	3 93
3	PA	Brodhead Creek	Stroudsburg	01	RP	09/02/92	4 93
3	PA	Butz Landfill	Stroudsburg	01	F	09/29/92	4 93
3	PA	Craig Farm Drum	Parker	01	RP	09/26/90	4 93
3	PA	CryoChem, Inc.	Worman	01	F	02/22/90	2 93
				02	F	12/28/90	2 93
				03	F	12/31/91	1 94
3	PA	Delta Quarries & Disposal, Inc. (Stotler Landfill)	Antis/Logan Townships	01	RP	06/01/92	4 93
3	PA	Dorney Road Landfill	Upper Macungie Township	01	RP	09/26/91	2 93

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STATUS OF REMEDIAL DESIGNS IN PROGRESS ON SEPTEMBER 30, 1992

RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE
3	PA	Douglassville Disposal	Douglassville	04	F	09/27/89	2 93
3	PA	Dublin TCE Site	Dublin Borough	01	F	04/27/92	1 94
3	PA	East Mount Zion	Springettsbury Township	01	F	01/09/91	4 93
3	PA	Hellertown Manufacturing Co.	Hellertown	01	F	03/12/92	2 93
3	PA	Hranica Landfill	Buffalo Township	01	RP	08/26/91	3 93
3	PA	Keystone Sanitation Landfill	Union Township	01	RP	03/11/92	2 94
3	PA	Kimberton Site	Kimberton Borough	02	RP	11/01/90	2 93
3	PA	Letterkenny Army Depot (Southeast Area)	Chambersburg	01	FF	09/25/91	1 93
3	PA	Lord-Shope Landfill	Girard Township	01	RP	08/19/91	4 93
3	PA	MW Manufacturing	Valley Township	03	F	09/30/90	1 94
3	PA	Modern Sanitation Landfill	Lower Windsor Township	01	RP	03/02/92	4 93
3	PA	Old City of York Landfill	Seven Valleys	01	RP	09/17/92	3 94
3	PA	Osborne Landfill	Grove City	01	RP	08/12/91	3 93
3	PA	Raymark	Hatboro	04	RP	01/26/89	2 93
3	PA	Resin Disposal	Jefferson Borough	01	RP	05/11/92	1 94
3	PA	Walsh Landfill	Honeybrook Township	01	F	09/26/90	2 93

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STATUS OF REMEDIAL DESIGNS IN PROGRESS ON SEPTEMBER 30, 1992

RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE
3	PA	Whitmoyer Laboratories	Jackson Township	02	RP	03/05/92	1 94
				03	RP	03/05/92	4 95
				04	RP	03/05/92	4 94
				05	RP	03/05/92	3 95
3	PA	William Dick Lagoons	West Caln Township	01	F	09/17/92	4 93
3	VA	Avtex Fibers, Inc.	Front Royal	01	RP	08/26/89	1 95
3	VA	Defense General Supply Center	Chesterfield County	05	FF	07/31/92	3 93
3	VA	First Piedmont Corp. Rock Quarry (Route 719)	Pittsylvania County	01	RP	09/21/92	2 94
3	VA	Greenwood Chemical Co.	Newton	01	F	06/29/90	2 93
				02	F	02/20/92	3 93
3	VA	L.A. Clarke & Son	Spotsylvania County	04	RP	03/03/90	1 94
3	VA	Saltville Waste Disposal Ponds	Saltville	02	RP	07/27/88	2 93
3	VA	Saunders Supply Co.	Chuckatuck	01	F	07/22/92	1 94
3	VA	U.S. Titanium	Piney River	01	RP	11/26/90	1 94
3	WV	Pike Chemical	Nitro	02	RP	02/27/92	3 92
3	WV	Ordnance Works Disposal Areas	Morgantown	01	RP	08/06/90	2 95
3	WV	West Virginia Ordnance	Point Pleasant	01	FF	07/14/92	2 93
				04	FF	06/28/91	4 93
				06	FF	09/01/91	1 94
4	AL	Ciba-Geigy Corp. (McIntosh Plant)	McIntosh	02	RP	05/26/92	4 94
4	AL	Interstate Lead Co. (ILCO)	Leeds	01	F	09/30/91	2 93
4	AL	Stauffer Chemical Co. (Clemoyne	Axis	01	RP	06/25/92	3 93

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STATUS OF REMEDIAL DESIGNS IN PROGRESS ON SEPTEMBER 30, 1992

RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE
		Plant)					
4	AL	Stauffer Chemical Co. (Cold Creek Plant)	Bucks	01	RP	06/25/92	3 93
4	FL	American Creosote Works, Inc. (Pensacola Plant)	Pensacola	01	F	09/25/89	2 93
4	FL	Cabot/Koppers	Gainesville	01	RP	04/12/91	3 93
				01	RP	09/27/91	3 93
4	FL	Coleman-Evans Wood Preserving Co.	Whitehouse	01	F	09/28/90	4 93
4	FL	Dubose Oil Products Co.	Cantonment	01	RP	07/19/91	2 93
4	FL	Kassauf-Kimerling Battery Disposal (once listed as Timber Lake Battery Disposal)	Tampa	01	RP	05/23/91	2 93
				02	RP	05/23/91	2 93
4	FL	Munisport Landfill	North Miami	01	RP	12/12/91	1 95
4	FL	Petroleum Products Corp.	Pembroke Park	01	RP	10/01/91	2 93
4	FL	Pickettville Road Landfill	Jacksonville	02	RP	04/23/92	3 93
4	FL	Schuylkill Metal Corp.	Plant City	01	RP	04/22/92	3 93
4	FL	Sixty-Second Street Dump	Tampa	01	RP	08/22/91	2 93
4	FL	Sydney Mine Sludge Ponds	Brandon	01	RP	06/23/92	3 93
4	KY	Airco	Calvert City	01	RP	01/05/89	4 94
4	KY	B.F. Goodrich	Calvert City	01	RP	01/05/89	4 94
4	KY	Howe Valley Landfill	Howe Valley	01	RP	06/03/91	2 93

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STATUS OF REMEDIAL DESIGNS IN PROGRESS ON SEPTEMBER 30, 1992

RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE
4	KY	Tri-City Disposal Co.	Shepherdsville	01	RP	03/31/92	4 93
4	MS	Newson Brothers/Old Reichhold Chemicals, Inc.	Columbia	01	RP	03/12/92	2 93
4	NC	Aberdeen Pesticide Dumps	Aberdeen	02	RP	03/14/90	2 90
4	NC	Benfield Industries, Inc.	Hazelwood	01	F	09/24/92	1 94
4	NC	Camp Lejeune Military Reservation (Marine Corp Base)	Onslow County	01	FF	09/30/92	4 93
4	NC	Carolina Transformer Co.	Fayetteville	01	F	09/30/92	1 94
4	NC	Jadco-Hughes Facility	Belmont	01	RP	01/31/91	4 93
4	SC	Carolawn, Inc.	Fort Lawn	01	RP	07/16/91	2 93
4	SC	Golden Strip Septic Tank Service	Simpsonville	01	RP	09/30/92	1 94
4	SC	Medley Farm Drum Dump	Gaffney	01	RP	11/26/91	4 93
4	SC	Palmetto Wood Preserving	Dixiana	02	F	02/08/89	3 93
4	SC	SCRDI Bluff Road	Columbia	01	RP	11/01/91	1 94
4	SC	Sangamo Weston, Inc./Twelve-Mile Creek/Lake Hartwel PCB	Pickens	01	RP	04/15/92	1 94
4	TN	Amnicola Dump	Chattanooga	01	RP	10/08/91	3 93
4	TN	Arlington Blending & Packaging	Arlington	01	RP	03/30/92	4 93
4	TN	Mallory Capacitor Co.	Waynesboro	01	RP	03/30/92	3 93
4	TN	North Hollywood Dump	Memphis	01	RP	11/14/91	4 93
4	TN	Velsicol Chemical Corp. (Hardeman County)	Toone	01	RP	11/27/91	4 94
4	TN	Wrigley Charcoal Plant	Wrigley	01	S	09/25/92	4 93

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STATUS OF REMEDIAL DESIGNS IN PROGRESS ON SEPTEMBER 30, 1992

RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE
5	IL	Acme Solvent Reclaiming, Inc.	Morristown	03	RP	11/18/91	4 93
				04	RP	11/18/91	2 93
				06	RP	11/18/91	2 93
				07	RP	11/18/91	2 93
				08	RP	11/18/91	4 94
5	IL	Cross Brothers Pail Recycling	Pembroke Township	01	RP	03/13/90	3 93
5	IL	NL Industries/Taracorp Lead Smelter	Granite City	01	F	03/08/91	2 93
5	IL	Sangamo Electric Dump/Crab Orchard National Wildlife Refuge (USDOI)	Carterville	01	FF	05/02/91	2 93
				02	RP	05/14/91	3 94
5	IN	Conrail Rail Yard (Elkhart)	Elkhart	01	RP	08/16/92	4 94
				02	F	05/05/92	4 96
5	IN	Envirochem Corp.	Zionsville	01	RP	09/25/89	4 93
5	IN	Fisher-Calo	LaPorte	01	RP	11/07/91	2 94
5	IN	Fort Wayne Reduction Dump	Fort Wayne	01	RP	12/28/88	4 93
5	IN	MIDCO I Site	Gary	01	RP*	06/23/92	2 98
5	IN	MIDCO II Site	Gary	01	RP*	06/23/92	2 98
5	IN	Main Street Well Field	Elkhart	02	RP	04/07/92	3 93
				03	RP	04/07/92	4 93
5	IN	Neal's Dump (Spencer)	Spencer	01	RP	08/22/85	3 96
5	IN	Ninth Avenue Dump	Gary	02	RP	09/20/89	3 94
5	IN	Northside Sanitary Landfill, Inc.	Zionsville	01	RP	03/12/90	4 93
5	IN	Wayne Waste Oil	Columbia City	01	RP	08/13/91	3 93
5	MI	Auto Iron Chemicals, Inc.	Kalamazoo	01	RP	08/28/90	3 93
5	MI	Bofors Nobel, Inc.	Muskegon	01	F	09/27/90	4 93

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STATUS OF REMEDIAL DESIGNS IN PROGRESS ON SEPTEMBER 30, 1992

RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE
5	MI	Chem Central	Wyoming Township	01	RP	04/07/92	1 95
5	MI	Cliff/Dow Dump	Marquette	01	RP	09/27/89	2 94
5	MI	Folkertsma Refuse	Grand Rapids	01	RP	05/29/92	1 94
5	MI	Forest Waste Products	Otisville	02	F	06/27/88	1 94
5	MI	G&H Landfill	Utica	01	RP	09/10/92	2 94
5	MI	Ionia City Landfill	Ionia	01	RP	09/13/90	1 94
5	MI	K & L Avenue Landfill	Oshtemo Township	01	RP	09/18/92	2 94
5	MI	Kentwood Landfill	Kentwood	01	RP	11/27/91	1 94
5	MI	Kysor Industrial Corp.	Cadillac	01	RP	05/16/90	4 93
5	MI	Metamora Landfill	Metamora	01 02	RP RP	04/26/91 04/26/91	2 93 1 94
5	MI	Motor Wheel, Inc.	Lansing	01	RP	05/22/92	2 94
5	MI	Northernaire Plating	Cadillac	02	RP	05/16/90	4 93
5	MI	Novaco Industries	Temperance	01	F	03/16/87	2 93
5	MI	Organic Chemicals, Inc.	Grandville	01	RP	01/30/92	1 94
5	MI	Peerless Plating Co.	Muskegon	01	F	09/21/92	3 94
5	MI	Rasmussen's Dump	Green Oak Township	01	RP	02/14/92	3 94
5	MI	Rose Township Dump	Rose Township	01	RP	07/18/89	1 94
5	MI	Spiegelberg Landfill	Green Oak Township	02	RP	08/22/91	2 94
5	MI	Springfield Township Dump	Davisburg	01	RP*	03/30/92	1 94

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STATUS OF REMEDIAL DESIGNS IN PROGRESS ON SEPTEMBER 30, 1992

RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE
5	MI	Thermo-Chem, Inc.	Muskegon	01	F	09/25/92	3 95
5	MI	Verona Well Field	Battle Creek	01	S	09/29/89	2 93
				02	F	09/20/92	2 94
				02	RP	03/02/92	4 93
				02	RP	05/04/92	2 94
5	MN	Arrowhead Refinery Co.	Hermantown	01	RP	09/06/91	1 94
5	MN	Koch Refining Co./N-Ren Corp.	Pine Bend	01	PS	05/01/92	4 93
5	MN	Kummer Sanitary Landfill	Bemidji	03	F*	09/25/91	1 94
5	MN	New Brighton/Arden Hills	New Brighton	09	FF	09/30/92	2 93
5	MN	Twin Cities Air Force Reserve Base (Small Arms Range Landfill)	Minneapolis	01	FF	04/01/92	1 93
5	MN	Whittaker Corp.	Minneapolis	01	PS	04/09/85	1 99
5	OH	Allied Chemical & Ironton Coke	Ironton	01	RP	03/09/89	3 93
				02	RP	08/13/91	4 92
5	OH	Arcanum Iron & Metal	Drake County	01	F	03/20/87	2 94
5	OH	Big D Campground	Kingsville	02	RP	05/02/90	1 93
5	OH	Buckeye Reclamation	St. Clairsville	01	F	03/12/92	1 94
5	OH	Coshocton Landfill	Franklin Township	01	RP	02/23/90	4 93
5	OH	Fields Brook	Ashtabula	01	RP	03/22/89	4 94
5	OH	Fultz Landfill	Jackson Township	01	F	06/24/92	1 95
5	OH	Industrial Excess Landfill	Uniontown	01	F	09/29/89	1 94
5	OH	Pristine, Inc.	Reading	04	RP	11/26/91	4 93
				05	RP	10/29/91	4 93
5	OH	Summit National	Deerfield Township	01	RP	06/11/91	2 93

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STATUS OF REMEDIAL DESIGNS IN PROGRESS ON SEPTEMBER 30, 1992

RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE
5	OH	United Scrap Lead Co., Inc.	Troy	01	F	04/10/89	4 95
5	OH	Zanesville Well Field	Zanesville	01	F	09/21/92	1 94
5	WI	Algoma Municipal Landfill	Algoma	01	RP	08/25/91	2 93
5	WI	Eau Claire Municipal Well Field	Eau Claire	01	F	09/29/88	4 92
5	WI	Fadrowski Drum Disposal	Franklin	01	RP	09/27/91	2 93
5	WI	Hunts Disposal	Caledonia	01	RP	05/05/92	1 94
5	WI	Janesville Ash Beds	Janesville	01	RP	07/12/91	2 94
5	WI	Janesville Old Landfill	Janesville	01	RP	07/12/91	2 94
5	WI	Kohler Co. Landfill	Kohler	01	PS	07/30/92	2 94
5	WI	Lemberger Landfill, Inc. (Lemberger Fly Ash Landfill)	Whitelaw	01	RP	06/01/92	4 94
5	WI	Lemberger Transport & Recycling	Franklin Township	01	RP	06/01/92	4 94
5	WI	Master Disposal Service Landfill	Brookfield	01	RP	08/13/91	1 94
5	WI	Mid-State Disposal, Inc. Landfill	Cleveland Township	01 02	RP RP	08/11/89 08/11/89	2 93 2 94
5	WI	Moss-American (Kerr-McGee Oil Co.)	Milwaukee	01	RP	07/15/91	1 95
5	WI	Oconomowoc Electroplating Co., Inc.	Ashippin	01	F	09/26/90	3 93
5	WI	Spickler Landfill	Spencer	01	RP	09/30/92	1 94
5	WI	Stoughton City Landfill	Stoughton	01	F	09/28/92	1 94
5	WI	Wausau Ground Water Contamination	Wausau	02	RP	05/10/90	3 93
6	AR	Arkwood, Inc.	Omaha	01	RP	10/21/91	2 94

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STATUS OF REMEDIAL DESIGNS IN PROGRESS ON SEPTEMBER 30, 1992

RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE
6	AR	Popile, Inc.	El Dorado	01	F	02/19/92	2 93
6	AR	South 8th Street Landfill	Jacksonville	01	F	09/11/92	4 95
6	LA	American Creosote Works, Inc (Winnfield)	Winnfield	01	F	02/19/92	2 93
6	NM	South Valley	Albuquerque	06	RP	09/01/89	2 93
6	OK	Hardage/Criner	Criner	02	RP	09/09/90	3 93
6	OK	Oklahoma Refining Co. (Pesses Chemical Co.)	Cyril	01	S	09/22/92	4 94
6	OK	Sand Springs Petrochemical Complex	Sand Springs	01	RP	10/03/88	2 94
6	TX	Brio Refining Co., Inc.	Friendswood	01	RP	06/29/89	3 93
6	TX	Crystal Chemical Co.	Houston	01	F	03/31/92	1 94
6	TX	North Calvacade Street	Houston	02	S	03/28/91	3 93
6	TX	Odessa Chromium #2 (Andrews Highway)	Odessa	03	RP	12/09/91	4 93
6	TX	Petro-Chemical Systems, Inc. (Turtle Bayou)	Liberty County	02 03	F F	09/25/92 09/25/92	3 94 3 94
6	TX	Sheridan Disposal Service	Hempstead	01 02	RP RP	12/29/89 03/29/90	2 94 2 97
6	TX	South Cavalcade Street	Houston	01	RP	07/30/90	4 94
6	TX	Texarkana Wood Preserving Co.	Texarkana	01	S	03/06/91	3 93
6	TX	United Creosoting Co.	Conroe	03	S	03/26/92	3 93
7	IA	Des Moines TCE (once listed as DICO)	Des Moines	02	RP	06/25/92	2 95

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STATUS OF REMEDIAL DESIGNS IN PROGRESS ON SEPTEMBER 30, 1992

RG	ST	SITE NAME	LOCATION	OPER-ABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE
7	IA	Mid-America Tanning Co.	Sergeant Bluff	01	F	01/21/92	3 93
7	IA	Midwest Manufacturing/North Farm	Kellogg	02	F	08/21/91	2 96
				03	F	08/21/91	2 96
7	IA	Peoples Natural Gas Co.	Dubuque	01	RP	06/12/92	2 94
7	IA	White Farm Equipment Co. Dump	Charles City	01	RP	09/24/92	2 94
7	KS	Doepke Disposal (Holliday)	Johnson County	01	RP	10/24/90	4 93
7	MO	Ellisville Site	Ellisville	02	EP	10/07/91	4 93
				02	EP	10/07/91	4 93
7	MO	Minker/Stout/Romaine Creek (Area 2: Fills 1 & 2)	Imperial	01	EP	05/01/91	4 93
7	MO	Shenandoah Stables (once listed as Arena 1: Shenandoah Stables)	Moscow Mills	02	EP	05/01/91	4 93
7	MO	Wheeling Disposal Service Co. Landfill	Amazonia	01	RP	09/11/91	2 93
7	NE	Hastings Ground Water Contamination	Hastings	03	RP	09/27/90	3 93
				04	RP	09/28/90	2 95
				09	RP	12/14/88	4 93
8	CO	Broderick Wood Products	Denver	02	F	09/28/92	3 94
				02	F	09/28/92	3 93
8	CO	California Gulch	Leadville	01	RP	04/25/89	4 92
8	CO	Central City - Clear Creek	Idaho Springs	01	S	06/15/88	2 93
				01	S	06/15/88	2 92
				03	S	09/30/91	1 96
8	CO	Chemical Sales Co.	Commerce City	01	RP	02/26/92	4 93
				02	F	02/26/92	4 93
				04	F	09/25/92	3 93
8	CO	Denver Radium Site	Denver	08	RP	06/07/92	4 92

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RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE
8	CO	Eagle Mine	Minturn/Redcliff	01	PS	05/20/88	4 94
8	CO	Rocky Flats Plant (USDOE)	Golden	02	FF	01/25/91	4 93
				02	FF	09/01/92	2 94
				04	FF	04/06/92	2 93
8	CO	Rocky Mountain Arsenal	Adams County	16	FF	04/04/90	4 93
8	CO	Sand Creek Industrial	Commerce City	05	F	03/29/91	3 93
8	CO	Smuggler Mountain	Pitkin County	01	F	08/15/91	4 92
8	MT	Anaconda Co. Smelter	Anaconda	11	RP	02/19/92	4 93
8	UT	Hill Air Force Base	Ogden	03	FF	09/30/92	2 93
8	UT	Monticello Mill Tailings (USDOE)	Monticello	01	FF	12/24/91	2 94
				01	FF	12/24/91	1 94
				01	FF	10/29/91	1 93
				01	FF	11/12/91	3 93
				02	FF	10/23/91	3 94
				02	FF	05/12/92	1 95
8	UT	Monticello Radioactively Contaminated Properties	Monticello	02	FE	09/29/89	2 94
8	UT	Ogden Defense Depot	Ogden	01	FF	04/06/92	4 93
8	UT	Portland Cement (Kiln Dust 2 & 3)	Salt Lake City	02	S	07/06/92	3 94
8	UT	Sharon Steel Corp. (Midvale Tailings/Smelters)	Midvale	02	S*	12/31/90	3 93
				02	S	08/28/91	3 92
8	UT	Wasatch Chemical Co.	Salt Lake City	01	RP	09/30/91	1 94
8	WY	Mystery Bridge Rd/U.S. Highway 20	Evansville	01	RP	06/27/91	2 93
9	AZ	Indian Bend Wash Area	Scottsdale/Tmpe/Phnx	06	RP	01/08/92	4 93

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RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE
9	AZ	Nineteenth Avenue Landfill	Phoenix	01	PS	09/28/90	3 94
9	AZ	Phoenix-Goodyear Airport Area	Goodyear	01	RP	03/16/92	3 93
				01	RP	01/04/91	4 93
9	AZ	Tucson International Airport Area	Tucson	01	RP	01/07/89	1 94
9	CA	Atlas Asbestos Mine	Fresno County	01	RP	06/08/92	4 93
9	CA	Coalinga Asbestos Mine	Coalinga	01	RP	05/02/88	4 93
9	CA	Fairchild Semiconductor/Camera & (South San Jose Plant)	South San Jose	01	RP	01/02/91	1 95
				02	RP	01/02/91	1 95
				03	RP	01/02/91	1 96
9	CA	Intel Corp. (Mountain View Plant)	Mountain View	01	RP	05/14/91	1 95
				01	RP	05/14/91	1 96
9	CA	Iron Mountain Mine	Redding	01	F	09/21/92	1 95
9	CA	J.H. Baxter & Co.	Weed	01	RP	07/10/92	1 94
				01	RP	08/19/91	3 94
9	CA	Koppers Co., Inc. (Oroville Plant)	Oroville	01	RP	01/15/92	3 93
				01	RP	02/21/92	4 93
				01	RP	02/21/92	3 93
				01	RP	02/21/92	3 93
9	CA	Lawrence Livermore National Laboratory (USDOE)	Livermore	01	FF	08/05/92	4 94
9	CA	Operating Industries, Inc., Landfill	Monterey Park	03	RP	04/01/92	1 95
9	CA	Pacific Coast Pipe Lines	Fillmore	01	RP	09/14/92	4 94
9	CA	Purity Oil Sales, Inc.	Malaga	01	RP	11/14/91	3 93
9	CA	Raytheon Corp.	Mountain View	01	RP	05/14/91	1 95
				02	RP	05/14/91	1 96

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RG	ST	SITE NAME	LOCATION	OPERABLE UNIT	LEAD	FUNDING START	PRESENT COMPLETION SCHEDULE
9	CA	San Fernando Valley (Area 1)	Los Angeles	03	RP	07/27/92	1 94
9	CA	Selma Treating Co.	Selma	03	F	09/30/92	1 96
9	CA	Valley Wood Preserving, Inc.	Turlock	01	F	06/25/92	2 93
9	CA	Westinghouse Electric Corp. (Sunnyvale Plant)	Sunnyvale	01	RP	02/06/92	3 94
10	ID	Idaho National Engineering Lab (USDOE)	Idaho Falls	05	FF	01/01/92	3 93
				23	FF	08/11/92	1 94
10	ID	Pacific Hide & Fur Recycling Co.	Pocatello	01	RP	02/13/92	2 93
10	ID	Union Pacific Railroad Co.	Pocatello	01	RP	06/12/92	4 93
10	WA	Bangor Naval Submarine Base	Silverdale	07	FF	12/20/91	2 93
10	WA	Bangor Ordnance Disposal	Bremerton	01	FF	02/26/92	4 93
10	WA	Colbert Landfill	Colbert	01	MR	03/23/89	3 93
10	WA	Commencement Bay, Near Shore/Tide Flats	Pierce County	01	RP	03/29/91	4 93
				03	RP	02/03/89	4 93
				05	PS	06/28/91	3 93
				05	PS	09/30/89	1 94
				05	PS	09/30/89	2 96
				05	PS	06/30/92	4 94
				05	PS	01/30/91	4 94
10	WA	Frontier Hard Chrome, Inc.	Vancouver	01	F	03/23/88	3 94

Appendix C
List of Records of Decision

This appendix provides a list of FY92 feasibility studies by identifying records of decision (RODs) signed from October 1, 1991, through September 30, 1992. Detailed descriptions of these feasibility studies, as required by CERCLA Section 301(h)(1)(A), are available in the publication *ROD Annual Report :Fiscal Year 1992.*

REGION	SITE	STATE	DATE
1	Brunswick Naval Air Station (O.U.1)	ME	6/16/92
	Brunswick Naval Air Station (O.U.2)	ME	6/16/92
	Darling Hill Dump	VT	6/30/92
	Newport Naval Education/Training Center	RI	9/29/92
	Otis Air National Guard/Camp Edwards (O.U.2)	MA	5/20/92
	PSC Resources	MA	9/15/92
	Revere Textile Prints Corp.	CT	9/30/92
	Tibbetts Road	NH	9/29/92
	Town Garage/Radio Beacon	NH	9/30/92
2	Action Anodizing, Plating, & Polishing	NY	6/30/92
	Bioclinical Laboratories Inc.	NY	9/30/92
	Cosden Chemical Coatings Corp.	NJ	9/30/92
	Dover Municipal Well 4	NJ	9/30/92
	Ellis Property	NJ	9/30/92
	Endicott Village Well Field	NY	9/30/92
	Evor Phillips Leasing	NJ	9/30/92
	FAA Technical Center	NJ	9/30/92
	Facet Enterprises	NY	9/4/92
	General Motors/Central Foundry Division	NY	3/31/92
	Higgins Farm	NJ	9/30/92
	Imperial Oil Co. Inc./Champion Chemicals	NJ	9/30/92
	Industrial Latex	NJ	9/30/92
	Islip Municipal Sanitary Landfill	NY	9/30/92
	Kin-Buc Landfill	NJ	9/28/92
	Naval Air Engineering Center (O.U.5)	NJ	1/3/92
	Naval Air Engineering Center (O.U.6)	NJ	12/31/91
	Naval Air Engineering Center (O.U.7)	NJ	3/16/92
	North Sea Municipal Landfill	NY	9/28/92

REGION	SITE	STATE	DATE
2	Pasley Solvents & Chemical Inc.	NY	4/24/92
	Plattsburg Air Force Base (O.U.1)	NY	9/30/92
	Plattsburg Air Force Base (O.U.3)	NY	9/30/92
	Preferred Plating Corp.	NY	9/28/92
	Ramapo Landfill	NY	3/31/92
	Robintech Inc./National Pipe	NY	3/31/92
	Rowe Industries Groundwater Contamination	NY	9/30/92
	Witco Chemical Corp. (Oakland Plant)	NJ	9/28/92
3	Abex Corp.	VA	9/29/92
	Brown's Battery Breaking	PA	7/2/92
	Butz Landfill	PA	6/30/92
	C&D Recycling	PA	9/30/92
	Chem-Solv Inc.	DE	3/31/92
	Commodore Semiconductor Group	PA	9/29/92
	Dixie Caverns County Landfill	VA	9/28/92
	Dublin Water Supply	PA	12/30/91
	Eastern Diversified Metals	PA	7/2/92
	Fike Chemical	WV	3/31/92
	Lindane Dump	PA	3/31/92
	MW Manufacturing	PA	6/30/92
	Paoli Rail Yard	PA	7/21/92
	Raymark	PA	12/30/91
	Rhinehart Tire Fire Dump	VA	9/29/92
	Route 940 Drum Dump	PA	9/28/92
	Strasburg Landfill	PA	3/31/92
	Suffolk City Landfill	VA	9/30/92
	Tonolli Corp.	PA	9/30/92
	U.S. Defense General Supply Center (O.U.1)	VA	5/15/92
	U.S. Defense General Supply Center (O.U.5)	VA	3/25/92
	USA Aberdeen, Michaelsville	MD	6/30/92
	Westinghouse Elevator Plant	PA	6/30/92
4	Agrico Chemical Site	FL	9/29/92
	Alabama Army Ammunition Plant	AL	12/31/91
	Benfield Industries, Inc.	NC	7/31/92
	Carrier Air Conditioning Company	TN	9/3/92
	Chem-Form Inc.	FL	9/22/92
	Ciba Geigy Corp (MacIntosh Plant)	AL	7/14/92
	Florida Steel Corp.	FL	6/30/92
	Geigy Chemical Corp. (Aberdeen Plant)	NC	8/27/92
	JFD Electronics/Channel Master	NC	9/10/92
	Madison County Sanitary Landfill	FL	9/28/92
	Marine Corps Logistics Base (O.U.3)	GA	8/14/92
	Milan Army Ammunition Plant	TN	9/30/92
	National Electric Coil/Cooper Industries	KY	9/30/92
	New Hanover County Airport Burn Pit	NC	9/29/92
	Potter's Septic Tank Svs Pits	NC	8/5/92
	Savannah River Site (USDOE) (O.U. 1)	SC	6/29/92
	Savannah River Site (USDOE) (O.U. 2)	SC	6/29/92
	Savannah River Site (USDOE) (O.U. 3)	SC	6/29/92
	Standard Auto Bumper	FL	9/28/92

REGION	SITE	STATE	DATE
4	USDOE Oak Ridge Reservation (O.U. 6)	TN	9/30/92
	USDOE Oak Ridge Reservation (O.U. 18)	TN	9/30/92
	USMC Camp Lejeune Military Reservation	NC	9/23/92
	Whitehouse Waste Oil Pits (Amendment)	FL	6/16/92
	Wilson Concepts of Florida	FL	9/22/92
	Woodbury Chemical Company (Princeton Plant)	FL	6/25/92
	Yellow Water Road Dump	FL	6/30/92
5	Alsco Anaconda	OH	9/30/92
	American Chemical Service Inc.	IN	9/30/92
	Bofors Nobel (Amendment)	MI	7/22/92
	Butterworth #2 Landfill	MI	9/29/92
	Cannelton Industries	MI	9/30/92
	Central IL Public Service	IL	9/30/92
	City Disposal Sanitary Landfill	WI	9/29/92
	Clare Water Supply	MI	9/16/92
	Columbus Old Municipal Landfill	IN	3/31/92
	Electrovoice	MI	6/23/92
	Grand Traverse Overall Supply Co.	MI	2/3/92
	H. Brown Co. Inc.	MI	9/30/92
	Hagen Farm	WI	9/30/92
	Kohler Co. Landfill	WI	3/30/92
	La Grande Sanitary Landfill	MN	9/30/92
	Metal Working Shop	MI	6/30/92
	MIDCO I (Amendment)	IN	4/13/92
	MIDCO II (Amendment)	IN	4/13/92
	Muskego Sanitary Landfill	WI	6/12/92
	New Brighton/Arden Hills	MN	9/30/92
	Peerless Plating Co. Inc.	MI	9/21/92
	Reilly Tar & Chemical (Indianapolis Plant)	IN	6/30/92
	Reilly Tar & Chemical (St. Louis Park)	MN	9/30/92
	Savanna Army Depot	IL	3/31/92
	Skinner Landfill	OH	9/30/92
	South Andover (O.U.1) (Amendment)	MN	6/9/92
	South Andover (O.U.2)	MN	12/24/91
	Spikler Landfill	WI	6/3/92
	Tar Lake	MI	9/29/92
	Torch Lake (O.U.1 and O.U.3)	MI	9/30/92
	Tri County Landfill Waste Management of Illinois	IL	9/30/92
	Twin Cities Air Force Reserve (SAR Landfill)	MN	3/31/92
6	Cal West Metals	NM	9/29/92
	Crystal Chemical (Amendment)	TX	6/16/92
	Double Eagle Refinery Co.	OK	9/28/92
	Fourth Street Abandoned Refinery	OK	9/28/92
	Gulf Coast Vacuum Services (O.U. 1)	LA	9/30/92
	Gulf Coast Vacuum Services (O.U. 2)	LA	9/30/92
	Koppers (Texarkana Plant) (Amendment)	TX	3/4/92
	Mosley Road Sanitary Landfill	OK	6/29/92
	Oklahoma Refining Co.	OK	6/9/92
	Prewitt Abandoned Refinery	NM	9/30/92
7	29th & Mead Groundwater Contamination	KS	9/29/92

REGION	SITE	STATE	DATE
7	Des Moines TCE	IA	9/18/92
	Farmers' Mutual Cooperative	IA	9/29/92
	Hydro-Flex Inc.	KS	3/9/92
	Pester Refinery Co.	KS	9/30/92
8	Broderick Wood Products	CO	3/24/92
	Denver Radium Site (O.U. 8)	CO	1/28/92
	Denver Radium Site (O.U. 9)	CO	12/23/91
	Hill Air Force Base	UT	9/25/92
	Idaho Pole Co.	MT	9/28/92
	Ogden Defense Depot (O.U. 1)	UT	6/26/92
	Ogden Defense Depot (O.U. 3)	UT	9/28/92
	Ogden Defense Depot (O.U. 4)	UT	9/28/92
	Portland Cement (Kiln Dust #2 & #3),	UT	3/31/92
	Rocky Flats Plant (USDOE) (O.U.2)	CO	9/1/92
	Rocky Flats Plant (USDOE) (O.U.4)	CO	4/6/92
	Silver Bow Creek/Butte Area	MT	6/30/92
9	Hassayampa Landfill	AZ	8/6/92
	Iron Mountain Mine	CA	8/6/92
	Jasco Chemical Co.	CA	9/30/92
	Lawrence Livermore National Laboratory (USDOE)	CA	8/5/92
	Pacific Coast Pipeline	CA	3/31/92
	Purity Oil Sales	CA	9/30/92
	Rhone-Poulenc Inc./Zoecon	CA	3/4/92
	Sacramento Army Depot (O.U.3)	CA	12/9/91
	Sacramento Army Depot (O.U.4)	CA	9/30/92
	Westinghouse Electric (Sunnyvale Plant)	CA	10/16/92
10	Arrcom Corp. (Drexler Enterprise Inc.)	ID	6/30/92
	Bangor Ordnance Disposal (USN Submarine Base)	WA	12/10/91
	Bunker Hill Mining & Metallurgical Complex	ID	9/22/92
	Eielson Air Force Base	AK	9/29/92
	Elmendorf Air Force Base	AK	9/1/92
	Fort Lewis (Landfill No. 5)	WA	7/10/92
	Joseph Forest Products	OR	9/25/92
	McChord AFB (Wash Rack/Treatment)	WA	9/28/92
	Mountain Home Air Force Base	ID	6/16/92
	N.A.S. Whidbey Island - Ault Field	WA	4/21/92
	Pacific Hide & Fur Recycling (Amendment)	ID	4/29/92
	Pesticide Lab - Yakima	WA	9/30/92
	Umatilla Army Depot (Lagoons)	OR	9/25/92
	USDOE Idaho National Engineering Laboratory (O.U.2)	ID	9/28/92
	USDOE Idaho National Engineering Laboratory (O.U.5)	ID	12/5/91
	USDOE Idaho National Engineering Laboratory (O.U.22)	ID	9/30/92
	USDOE Idaho National Engineering Laboratory (O.U.23)	ID	6/2/92
	Wyckoff Co./Eagle Harbor	WA	9/29/92

Appendix D

Progress Toward Meeting Superfund-Related Statutory Requirements

In response to a recommendation of the *Lautenberg-Durenberger Report on Superfund Implementation: Cleaning up the Nation's Cleanup Program*, EPA includes in this Report the following matrix, which charts the progress of EPA and other government organizations in meeting statutory requirements imposed by SARA. The matrix lists all Superfund-related administrative and program implementation (rather than site-specific) requirements by statutory section, describes the mandated activity, indicates if the activity has been completed, and briefly describes what has been done to meet the requirement. If the activity has not been completed, its status is reported.

EPA and other government organizations have made significant progress towards meeting their statutory requirements. The matrix indicates that 36 of the 39 applicable one-time requirements with specific deadlines have been completed. Furthermore, 7 of the 12 requirements due annually have been completed for FY92 and the biannual requirement for FY92 has been completed. Also, 25 of the 26 requirements with no specific deadlines have been completed.

Progress Toward Meeting CERCLA-Related Statutory Requirements, as Amended by SARA[1/]

CERCLA Section	Statutory Deadline	Requirement	Status
102(a)	12/31/86[2/]	EPA to promulgate final regulations establishing reportable quantities (RQs) for all hazardous substances for which proposed RQs were published prior to March 1, 1986.	**Completed 05/08/92**—EPA promulgated final RQs for lead and methyl isocyanate in the *Federal Register* (*FR*) (56 *FR* 20014). **09/29/86, 08/14/89**—EPA promulgated final RQs for all hazardous substances (except for lead metal and methyl isocyanate) (51 *FR* 34534, 54 *FR* 33418, 54 *FR* 33426).
102(a)	12/31/86[2/]	EPA to propose regulations establishing RQs for all hazardous substances for which proposed RQs were not published prior to March 1, 1986.	**Completed 03/16/87**—EPA proposed RQs for all hazardous substances for which proposed RQs were not published prior to March 1, 1986 (52 *FR* 8140). EPA proposed RQs for radionuclides (52 *FR* 8172).
102(a)	04/30/88[2/]	EPA to promulgate final regulations establishing RQs for all hazardous substances for which proposed RQs were not published prior to March 1, 1986.	**Completed 05/08/92**—EPA promulgated final RQs for the 16 remaining hazardous substances (56 *FR* 20014). **08/14/89**—EPA promulgated final RQs for all hazardous substances (except for 14 lead-containing wastes, lead acetate, and lead phosphate) (54 *FR* 33418, 54 *FR* 33426). **05/24/89**—EPA promulgated final RQs for radionuclides (54 *FR* 22524).

1/ In this matrix, requirements of CERCLA, as amended by SARA, precede requirements of SARA that do not amend CERCLA.

2/ Deadline specified in statute rather than correlated to date of enactment.

CERCLA Section	Statutory Deadline	Requirement	Status
104(c)(9)	10/17/89	States to provide assurances of availability of hazardous waste treatment or disposal facilities.	**Completed 03/19/90**—All 50 states and the District of Columbia have submitted plans. **12/29/88**—EPA issued guidance to state officials on providing assurances (53 *FR* 52783).
104(i)(2)(A)	04/17/87	Agency for Toxic Substances and Disease Registry (ATSDR) and EPA to produce list of 100 hazardous substances most commonly found at National Priority List (NPL) sites that pose significant human health risks.	**Completed 04/17/87**—ATSDR and EPA published a list of first set of 100 hazardous substances (52 *FR* 12866).
104(i)(2)(B)	10/17/88	ATSDR and EPA to produce list of a total of 200 hazardous substances including the first set of 100 substances most commonly found at NPL sites that pose significant human health risks.	**Completed 10/20/88**—ATSDR and EPA published a list of 200 hazardous substances which includes the first and second set of hazardous substances (53 *FR* 41280).
104(i)(2)(B)	10/17/89[3/]	ATSDR and EPA to add no fewer than 25 hazardous substances to list of those most commonly found at NPL sites that pose significant human health risks.	**Completed 10/26/89, 10/17/90, 10/17/91**—EPA published three lists of 25 hazardous substances each (54 *FR* 43619, 55 *FR* 42067, 56 *FR* 52166); **11/25/91**--Correction to the 10/17/91 list was published (56 *FR* 59331).

[3/] Due annually on this date through 1991.

CERCLA Section	Statutory Deadline	Requirement	Status
104(i)(2)(B)	10/17/92[4/]	ATSDR and EPA to revise list of hazardous substances most commonly found at NPL sites that pose significant human health risks.	**10/17/91**—EPA expects to revise list annually (56 *FR* 52166). **Completed 10/28/92**—Notice of availability of revised CERCLA Priority List of 275 Hazardous Substances was published (57 *FR* 48801). **Completed 02/28/94**—Notice of availability of revised CERCLA Priority List of 275 Hazardous Substances (59 *FR* 9486).
104(i)(3)	10/17/87[5/]	ATSDR to prepare toxicological profiles on each of the hazardous substances on the list of those most commonly found at NPL sites that pose significant human health risks.	**Completed 10/15/87**—The first set of 25 profiles were announced for public comment (52 *FR* 38340). **04/06/89, 06/28/89, 12/01/89**—Notices of availability of 15 final profiles were published (54 *FR* 14037, 54 *FR* 26417, 54 *FR* 49816). **12/17/90**—Notice of availability of all 25 final profiles was published (55 *FR* 51775). **Completed 12/20/88**—The second set of 25 profiles was announced for public comment (53 *FR* 51192). **08/14/90**—Notice of availability of final profiles was published (55 *FR* 33172). **Completed 10/17/89**—The third set of 30 profiles was announced for public comment (54 *FR* 42568). **06/13/91**—Notice of availability of final profiles was published (56 *FR* 27261). **06/26/91**—Notice of availability of correction to final profiles was published (56 *FR* 29308).

[4/] Due annually on this date beginning in 1992.

[5/] Profiles for original 100 hazardous substances on list must be completed at a rate of no fewer than 25 per year by 10/17/90.

CERCLA Section	Statutory Deadline	Requirement	Status
			Completed 10/16/90—The fourth set of 30 profiles was announced for public comment (55 *FR* 41881). **09/12/91**—An additional three fluoride compound profiles were announced for public comment (56 *FR* 46436). **Completed 10/17/91**—The fifth set of 19 profiles was announced for public comment (58 FR 52036). **10/08/92**—An additional five profiles were announced for public comment (57 *FR* 46393). **03/26/93**—Notice of availability of final profiles was published for 28 of 30 draft profiles (58 *FR* 16410). **04/16/93**—Notice of availability of corrections to final profiles was published (58 *FR* 19823). **10/1/93**—Notice of availability of 19 final updated profiles from the fifth set and two from the fourth set was published (58 *FR* 51352).
104(i)(3)	[6/]	ATSDR to revise and republish toxicological profiles.	**10/17/91**—The first set of 20 updated draft profiles was published (56 *FR* 52086). **11/25/91**—Correction to the 20 updated profiles was published (56 *FR* 59330). **10/08/92**—Notice of availability of 10 updated draft profiles was published (57 *FR* 46393). **10/18/93**—Notice of six updated drafts and five new draft profiles was published (58 FR 53739).

[6/] Profiles for hazardous substances must be revised within three years after addition to list.

CERCLA Section	Statutory Deadline	Requirement	Status
104(i)(5)(A)	1/	ATSDR, in consultation with EPA and the Public Health Service, to assess whether adequate information is available on the health effects of those hazardous substances most commonly found at NPL sites that pose significant human health risks.	ATSDR includes assessments in the "Adequacy of the Database" section of the toxicological profiles required by CERCLA Section 104(i)(3). Subsequently, ATSDR refines these assessments.
104(i)(5)(A)	1/	ATSDR, in cooperation with the National Toxicology Program (NTP), to assure the initiation of a program of research designed to determine the health effects (and techniques for development of methods to determine such health effects) of substances for which adequate information is not available (or under development).	**Completed 09/11/89**—ATSDR published *Decision Guide for Identifying Substance-Specific Data Needs Related to Toxicological Profiles* (54 *FR* 37618). **03/28/90**—ATSDR published the results of a pilot exercise that identified priority data needs for specific substances (55 *FR* 11566). **10/17/91**—Initiation of the Substance-Specific Research Program in which 38 substances were classified as priority leads (56 *FR* 52178).
104(i)(5)(D)	10/17/87	EPA to promulgate regulations for the payment and recovery of costs of health effects research programs established under CERCLA Section 104(i)(5).	**Completed 03/08/90**—EPA believes that the revised National Oil and Hazardous Substances Pollution Contingency Plan (NCP) satisfies the statutory requirement (NCP Subpart B 300.160(d); (55 *FR* 8666)); see also preamble to proposed rule (53 *FR* 51402).

1/ Specific deadline not stated in statute.

1/ Specific deadline not stated in statute.

CERCLA Section	Statutory Deadline	Requirement	Status
104(i)(6)(A)	12/10/88[2/]	ATSDR to complete health assessments for facilities proposed for the NPL prior to SARA's date of enactment.	**Completed 12/08/88**—Health assessments were performed for 951 facilities.
104(i)(6)(A)	[8/]	ATSDR to complete health assessments for facilities proposed for the NPL after SARA's date of enactment.	**Ongoing**—During FY92, ATSDR completed 233 health assessments, including 19 petitioned assessments. ATSDR also conducted 118 revisited assessments. (See ATSDR Section in Chapter 9 of this Report.)
104(i)(10)	10/17/88[9/]	ATSDR to submit report to EPA and Congress on ATSDR activities.	**Completed August 1989, August 1990, February 1992, October 1994**—Volumes I and II of the 1987-88 biannual report, the 1989-90 biannual report and the 1991-92 biannual report were submitted to EPA and Congress.

[2/] Deadline specified in statute rather than correlated to date of enactment.

[8/] Health assessments to be completed within one year of date of proposal on NPL.

[9/] Due biannually from 10/17/88.

CERCLA Section	Statutory Deadline	Requirement	Status
104(i)(14)	1/	ATSDR to assemble and develop as necessary, educational materials (including short courses) on the medical surveillance, screening, and methods of diagnosis and treatment of injury or disease related to exposure to hazardous substances. The material will be distributed to the states and upon request to medical colleges, physicians, and other health professionals.	**Completed 09/13/89**—ATSDR created the Division of Health Education to implement ongoing program. **FY90**—ATSDR developed 40,000 case studies in environmental medicine, which were distributed through states, counties, and professional organizations; ATSDR negotiated and implemented 20 state cooperative agreements for physician education training in environmental medicine; and ATSDR developed state training course materials and provided support to conduct training (2,800 health professionals trained). **FY91**—ATSDR funded the Association of State and Territorial Health Officials to implement state courses in risk communication (56 *FR* 41693); ATSDR funded state departments of health and departments of the environment to educate health professionals on hazardous substance exposure in the environment (56 *FR* 41694); ATSDR also funded the Association of Occupational and Environmental Clinics to improve the methodology for diagnosing injury related to hazardous substance exposure (56 *FR* 41691).

1/ Specific deadline not stated in statute.

CERCLA Section	Statutory Deadline	Requirement	Status
104(i)(14) (cont.)	1/	ATSDR to assemble and develop as necessary, educational materials (including short courses) on the medical surveillance, screening, and methods of diagnosis and treatment of injury or disease related to exposure to hazardous substances. The material will be distributed to the states and upon request to medical colleges, physicians, and other health professionals.	**FY92**—More than 5,000 health professionals were trained during the fiscal year. ATSDR distributed over 110,000 copies of *Case Studies in Environmental Medicine* to health professionals. Five case studies were published in the Journal of the American Academy of Family Physicians. *Case Studies in Environmental Medicine: Nitrate/Nitrite Toxicity* was distributed to 38,000 members of the American Academy of Pediatrics. (See ATSDR Section of Report.)
105(b)	04/17/88	EPA to revise the NCP.	**Completed 03/08/90**—EPA published the revised NCP (55 *FR* 8666).
105(c)(1)	04/17/88	EPA to promulgate amendments to the hazard ranking system (HRS).	**Completed 12/14/90**—EPA published the revised HRS (55 *FR* 51532). **12/23/88**—EPA published the proposed revisions (53 *FR* 51962).
105(c)(1)	10/17/88	EPA to establish effective date for the amended HRS.	**Completed 12/14/90**—The revised HRS became effective 03/14/91, 90 days after publication in *Federal Register*.
107(f)(2)(A)	1/	EPA to designate in the NCP federal natural resource trustees.	**Completed 11/20/85**—EPA designated in Section 300.72 of the NCP federal natural resource trustees (50 *FR* 47912). **03/08/90**—Section 300.72 of the NCP was revised and renumbered as Section 300.600 (55 *FR* 8666).
107(f)(2)(B)	1/	States to designate state natural resource trustees and notify the Department of the Interior (DOI) of such designations.	48 states and four territories have officially designated natural resource trustees as of January 1995.

1/ Specific deadline not stated in statute.

CERCLA Section	Statutory Deadline	Requirement	Status
107(k)(6)	1/	Comptroller General to conduct a study of options for the management of the liabilities associated with hazardous waste treatment, storage, and disposal sites after their closure.	**Completed 06/01/90**—General Accounting Office (GAO) published a report entitled *Hazardous Waste—Funding of Post-Closure Liabilities Remains Uncertain* (GAO/RCED-90-64).
109(d)	1/	EPA to prescribe criteria (by regulation) for paying an award to any individual who provides information leading to the arrest and conviction of any person for a violation subject to criminal penalty under CERCLA.	**Completed 05/05/88**—EPA issued an interim final rule (IFR) prescribing criteria for citizen awards for information on criminal violations under Superfund (53 *FR* 16086). **06/21/89**—EPA published a final rule identical to the IFR (54 *FR* 26142).
111(k)	Annually	Inspector General (IG) of federal agencies, departments, or instrumentalities to conduct audits and submit audit reports to Congress of all uses of the Hazardous Substances Trust Fund in the prior fiscal year.	**Completed September 1988, September 1989, September 1990, September 1991, September 1992, and September 1993.**—EPA submitted FY87, FY88, FY89, FY90, FY91, and FY92 reports to Congress.
111(o)	01/17/87	EPA to develop and implement procedures to adequately notify concerned local and state officials of limitations on the payment of claims for response costs incurred for sites on NPL.	**Completed 02/05/87**—EPA published notice of regulatory limitations on response claims (52 *FR* 3699).
112(b)(1)	1/	EPA to prescribe appropriate forms and procedures for response claims filed under CERCLA.	**Completed 01/21/93**—EPA published final rule (58 *FR* 5460). **09/13/89**—EPA published proposed regulations to establish response claims procedures (54 *FR* 37892).

1/ Specific deadline not stated in statute.

CERCLA Section	Statutory Deadline	Requirement	Status
113(k)	1/	EPA to promulgate regulations that will establish procedures for public participation in the development of the administrative record.	Completed 03/08/90—Regulations included in revised NCP Subpart I (55 *FR* 8666).
116(a)(1)	01/01/88 2/	EPA to complete preliminary assessments (PAs) of all facilities contained on the CERCLA Information System (CERCLIS) as of SARA's date of enactment.	Completed 01/01/88.
116(a)(2)	01/01/89 2/	Following completion of PAs, EPA to complete site inspections (SIs) at facilities contained in CERCLIS as of SARA's date of enactment, as necessary.	Completed December 1994. All ten Regions have met requirements.
116(b)	10/17/90	Following completion of PAs or SIs, EPA to complete evaluation of each facility listed in CERCLIS as of SARA's date of enactment, as warranted.	Following completion of PAs or SIs, EPA will take appropriate steps to mitigate, through remedial or removal authority or both, the threat at facilities based on the policy of addressing worst sites first.
116(d)(1)	10/17/89	EPA to start 275 remedial investigations/feasibility studies (RI/FSs).	Completed May 1989.
116(d)(2)	10/17/90	EPA to start total of 450 RI/FSs only if 275 starts deadline not met.	Not applicable—Prior deadline met.
116(d)(2)	10/17/91	EPA to start total of 650 RI/FSs only if 275 starts deadline not met.	Not applicable—Prior deadline met.

1/ Specific deadline not stated in statute.

2/ Deadline specified in statute rather than correlated to date of enactment.

CERCLA Section	Statutory Deadline	Requirement	Status
116(e)(1)	10/17/89	EPA to start 175 remedial actions (RAs) at individual NPL sites.	**Completed 02/01/90.**
116(e)(2)	10/17/91	EPA to start an additional 200 RAs at individual NPL sites.	**Completed during FY93.**
117(e)	1/	EPA to promulgate regulations for issuing Technical Assistance Grants.	**Completed 10/01/92**—EPA published final rule (57 *FR* 45311).
119(c)(7)	1/	EPA to develop guidelines and promulgate regulations on the indemnification of response action contractors.	**Completed 01/25/93**—EPA published final guidelines (58 *FR* 5972). **10/06/87**—EPA issued interim guidance (OSWER Directive #9835.5). **10/31/89**—EPA published proposed guidance and request for comments (54 *FR* 46012).
119(c)(8)	09/30/89 2/	Comptroller General to report to Congress on application of CERCLA's provisions for the indemnification of response action contractors.	**Completed 09/26/89**—GAO published report entitled *Contractors Are Being Too Liberally Indemnified by the Government* (GAO/RCED-89-160).
120(c)	1/	EPA to establish Federal Agency Hazardous Waste Compliance Docket and make available for public inspection.	**Completed 02/12/88**—Notice of initial list of 1,095 federal facilities was published (53 *FR* 4280). Public may review and copy specific documents in the Docket by contacting the Federal Facilities Docket Hotline.

1/ Specific deadline not stated in statute.

2/ Deadline specified in statute rather than correlated to date of enactment.

CERCLA Section	Statutory Deadline	Requirement	Status
120(c)	Semiannually	EPA to publish updates of Federal Agency Hazardous Waste Compliance Docket.	**Completed 11/16/88, 12/15/89, 08/22/90, 09/27/91, 12/12/91, 07/17/92, 02/05/93, 11/10/93**—EPA published the first eight updates (53 *FR* 46364, 54 *FR* 51472, 55 *FR* 34492, 56 *FR* 49328, 56 *FR* 64898, 57 *FR* 31758, 58 *FR* 7298, 58 FR 59790).
120(d)	04/17/88	EPA shall take steps to assure that a PA is conducted for each facility on the Federal Agency Hazardous Waste Compliance Docket.	**Completed 04/17/88**—EPA took steps to assure that federal agencies complied with this process prior to statutory deadline. EPA informs federal agencies of the requirement to gather information on sites and assists agencies in collecting and analyzing such information. PAs have not yet been completed at all federal facilities.
120(d)	04/17/89	Following PAs, EPA to evaluate federal facilities with criteria established in accordance with Section 105 under the NCP for determining priorities among releases; those facilities meeting the criteria are to be included on the NPL.	EPA evaluates federal facilities where appropriate in light of resource constraints and other demands. During FY92, six federal facilities were proposed to the NPL, bringing the total number of proposed federal facilities to nine. No facilities were finalized during FY92. Through the end of FY92, a total of 116 federal facilities had been added to the NPL. Additional sites have been evaluated and determined not to be appropriate for the NPL.

CERCLA Section	Statutory Deadline	Requirement	Status
120(e)(1)	7/	EPA and states to publish timetable and deadlines for completion of RI/FSs at federal facilities listed on NPL.	Schedules for completion of RI/FSs at federal facilities are routinely developed pursuant to interagency agreements (IAGs), or are published by EPA and the state when IAG negotiations are unsuccessful. IAGs have been signed for 104 of the 116 federal facility sites as of FY92.
120(e)(1)	10/17/87	Federal departments, agencies, or instrumentalities to begin RI/FSs for federal facilities listed on NPL prior to SARA's date of enactment.	Not applicable—No federal facilities were listed on the NPL prior to SARA's date of enactment.
120(e)(1)	10/	Federal departments, agencies, or instrumentalities to begin RI/FSs for federal facilities listed on NPL.	**07/22/87**—The first federal facilities were listed on NPL (52 *FR* 27620); CERCLIS reports that more than 100 RI/FS were started at federal facility sites during FY92.
120(e)(2)	11/	Federal departments, agencies, or instrumentalities to enter into IAGs with EPA for completion of RAs for federal facilities listed on NPL.	EPA policy is to enter into an IAG with federal facilities (listed on the NPL) during the RI/FS stage, prior to the RA stage. As a result, RA IAGs are completed well in advance of the statutory mandate. At the end of FY92, 104 IAGs had been signed with 12 IAGs signed during FY92.

7/ Specific deadline not stated in statute.

10/ Not later than six months after listing of federal facility on NPL.

11/ Within 180 days after EPA review of RI/FS.

CERCLA Section	Statutory Deadline	Requirement	Status
120(e)(2)	[12]	Federal departments, agencies, or instrumentalities to begin RAs for federal facilities listed on NPL.	During FY92, nearly 30 RAs for federal facilities on the NPL began.
120(e)(3)	Annually with budget	Federal agencies to review alternative agency funding to provide for costs of RAs. Agencies to submit statement of the hazard posed by facilities and identify consequences of failure to begin and complete RAs.	Completed January 1987, January 1988, January 1989, January 1990, January 1991, January 1992, January 1993—Included in annual budget submissions to Congress.
120(e)(5)	Annually	Federal agencies, departments, or instrumentalities to submit reports to Congress on progress in implementing CERCLA federal facility requirements.	Completed May 1989, April 1990, September 1990, February 1992, and February 1994—EPA's reports were included in FY87, FY88, FY89, FY90, and FY91 Reports to Congress, required under CERCLA Section 301(h)(1). Ongoing January 1995—FY92 Report to Congress is in review.
120(h)(2)	04/17/88	EPA, in consultation with the General Services Administration, to promulgate regulations on the form and manner of notice required whenever any federal department, agency, or instrumentality enters into a contract to sell or transfer property owned by the United States on which a hazardous substance was stored, disposed, or released.	Completed 04/16/90—Final rule was published (55 *FR* 14208).

[12] Not later than 15 months after completion of RI/FS.

CERCLA Section	Statutory Deadline	Requirement	Status
121(c)	1/	EPA to report to Congress a list of facilities for which a five-year review is required, the results of all such reviews, and any actions taken.	**Completed May 1989, April 1990, September 1990, February 1992, and February 1994**—EPA's reports were included in FY87, FY88, FY89, FY90, and FY91 Reports to Congress, required under CERCLA Section 301(h)(1). **Ongoing January 1995**—FY92 Report to Congress is in review.
121(f)	1/	EPA to promulgate regulations providing for state involvement in initiation, development, and selection of remedial activities.	**Completed 03/08/90**—Regulations are included in the revised NCP Subpart F (55 *FR* 8666).
122(e)(1)	1/	EPA to issue procedures for special notice regarding negotiation with potentially responsible parties.	**Completed 10/19/87**—EPA sent procedural guidelines to Regional Administrators from Assistant Administrator for OSWER (OSWER Directive #9834.10). **02/23/88**—Guidelines were published as *Interim Guidance on Notice Letters, Negotiations, and Information Exchange* (53 *FR* 5298). **02/07/89**—EPA published Appendix C to the Interim Guidance (Model Notice Letters) (OSWER Directive #9834.10).
122(e)(3)(A)	1/	EPA to develop guidelines for preparing nonbinding preliminary allocations of responsibility (NBAR).	**Completed 05/28/87**—EPA published interim final guidelines (52 *FR* 19919). **May 1991**—EPA published *Summary of "Interim Guidelines for Preparing NBARs"* (OSWER Directive #9839.1FS).

1/ Specific deadline not stated in statute.

CERCLA Section	Statutory Deadline	Requirement	Status
123(d)	10/17/87	EPA to promulgate regulations for reimbursement to local governments for costs incurred in responding to the release or threatened release of a hazardous substance, pollutant, or contaminant.	**Completed 01/15/93**—EPA published final rule (58 *FR* 4816); **10/21/87**—IFR was published (52 *FR* 39386).
126(c)	FY88 budget request	EPA to submit report to Congress on hazardous waste sites on Indian lands.	**Completed 11/06/87**—Report entitled *Hazardous Waste Sites on Indian Lands* was submitted to Congress.
301(c)(1)	04/17/87	DOI to issue regulations for the assessment of damages for injury to, destruction of, or loss of natural resources resulting from a release of oil or a hazardous substance.	**Completed 02/22/88**—Final regulations published (53 *FR* 5166).
301(g)	10/17/87	Comptroller General to submit report to Congress on the results of the insurability study.	**Completed 10/16/87**—GAO published the report entitled *Issues Surrounding Insurance Availability* (GAO/RCED-88-2).
301(h)(1)	Annually	EPA to submit report to Congress on CERCLA implementation.	**Completed May 1989, April 1990, September 1990, February 1992, and February 1994**—EPA's reports were included in FY87, FY88, FY89, FY90 and FY91 Reports to Congress, required under CERCLA Section 301(h)(1). **Ongoing January 1995**—FY92 Report to Congress is in review.

CERCLA Section	Statutory Deadline	Requirement	Status
301(h)(2)	7/	EPA IG to review EPA's Report to Congress required under CERCLA Section 301(h)(1).	**Completed May 1989, April 1990, September 1990, and February 1992, September 1993**—EPA's reports were included in FY87, FY88, FY89, FY90 and FY91 Reports to Congress, required under CERCLA Section 301(h)(1). **Ongoing January 1995**—FY92 Report to Congress is in review.
306(a)	13/	Department of Transportation (DOT) to list and regulate hazardous substances, listed or designated under CERCLA Section 101(14), as hazardous materials under the Hazardous Materials Transportation Act.	**Completed 08/21/89**—DOT, through the Research and Special Programs Administration (RSPA), amended Hazardous Materials Regulations (HMR) by revising the *List of Hazardous Substances and Reportable Quantities* (54 *FR* 34666). **11/07/90**—RSPA published additional revisions to the list in the HMR (55 *FR* 46794).
310(d)(1)	7/	EPA to issue regulations describing manner of notice of citizen suits.	**Completed 11/23/92**—EPA published final rule (54 *FR* 55038); 12/28/92—Correction to the final rule was published (51 *FR* 61612).

7/ Specific deadline not stated in statute.

13/ Requirements to be completed by November 17, 1986, or at the time each substance is listed or designated as hazardous under CERCLA, whichever is later.

CERCLA Section	Statutory Deadline	Requirement	Status
311(a)(1)	1/	Department of Health and Human Services (HHS) to establish and support a basic hazardous substance research and training program.	Completed 09/14/87—HHS published the notice of availability of final National Institute of Environmental Health Sciences (NIEHS) Hazardous Substances Basic Research and Training Plan (52 *FR* 34721). HHS previously initiated steps to establish program, including: draft program descriptions published by HHS on 11/28/86; first public meeting to solicit comments on 12/15/86.
311(a)(5)	1/	HHS to appoint an advisory council to assist in implementing and coordinating activities for the hazardous substance research and training program established under CERCLA Section 311(a)(1).	Completed 03/13/87—HHS appointed the NIEHS Advisory Council on Hazardous Substances Research and Training (52 *FR* 7934). 07/20/87—Advisory Council was first convened.
311(a)(6)	07/17/87	HHS, through NIEHS, to issue a plan to implement the hazardous substance research and training program established under CERCLA Section 311(a)(1).	Completed 09/14/87—Notice of availability of the final version of the NIEHS Hazardous Substances Basic Research and Training Plan was published (52 *FR* 34721).
311(b)(1)	1/	EPA to carry out a program of research, evaluation, testing, development, and demonstration of alternative or innovative technologies.	Completed December 1986—EPA published the Superfund Innovative Technology Evaluation (SITE) Strategy and Program Plan (EPA/540/G-86/001). The program is ongoing.

1/ Specific deadline not stated in statute.

CERCLA Section	Statutory Deadline	Requirement	Status
311(b)(5)(B)	01/17/87[14/]	EPA to publish a solicitation for innovative or alternative technologies suitable for full-scale demonstration at Superfund sites.	Completed January 1986, January 1987, January 1988, January 1989, January 1990, January 1991, January 1992, January 1993—Solicitations published.
311(b)(6)	[15/]	EPA to initiate or cause to be initiated at least 10 field demonstration projects of alternative or innovative treatment technologies.	**FY87**—1 site demonstration completed. **FY88**—6 site demonstrations completed. **FY89**—7 site demonstrations completed. **FY90**—4 site demonstrations completed. **FY91**—7 site demonstrations completed. **FY92**—15 site demonstrations completed.

[14/] First solicitation due January 17, 1987; subsequent solicitations to be published no less often than annually.

[15/] Due in fiscal years 1987, 1988, 1989, and 1990.

CERCLA Section	Statutory Deadline	Requirement	Status
311(b)(8)	1/	In carrying out the SITE program established under CERCLA Section 311(b)(1), EPA to conduct a technology transfer program and establish and maintain a central reference library on relevant information.	Completed December 1986—EPA announced the publication of program reports and documents (e.g., demonstration reports, bulletins) through the Center for Environmental Research Information. **09/01/87**—EPA established the electronic Bulletin Board System (BBS), including a "SITE Conference." **05/08/89**—EPA established the Alternative Treatment Technology Information Center (ATTIC). EPA eliminated the SITE Conference from the BBS; important program information is available through ATTIC. **08/07/91**—SITE announced an update of the ATTIC system which will include bioremediation technologies (56 *FR* 37543).
311(d)	1/	EPA to make grants to universities to establish and operate not fewer than five hazardous substance research centers.	Completed FY89, FY90, FY91, FY92—EPA made two-year grants to five hazardous substance research centers for a total of $1.4 million.
311(e)	Annually with budget	EPA to submit report to Congress on progress of the SITE program established under CERCLA Section 311(b)(1).	Completed February 1988, March 1989, March 1990, September 1991, October 1992, October 1993—FY87, FY88, FY89, FY90, FY91, and FY92 SITE program reports were submitted to Congress.

1/ Specific deadline not stated in statute.

CERCLA Section	Statutory Deadline	Requirement	Status
312(e)	1/	EPA to conduct habitability and land use study of the Love Canal Emergency Declaration Area, and to work with New York State (NYS) to develop recommendations based upon the study results.	Completed 07/28/88—Study was submitted to NYS Commissioner of Health. **September 1988**—Commissioner issued follow-up report. **07/10/89**—Love Canal Land Use Advisory Committee issued recommendations. **May 1990**—Love Canal Area Revitalization Agency published the final generic environmental impact statement. **June 1990**—The Agency published the Love Canal Area Master Plan.

1/ Specific deadline not stated in statute.

Progress Toward Meeting SARA-Related Statutory Requirements[1/]

SARA Section	Statutory Deadline	Requirement	Status
118(b)	01/17/87	EPA to grant $7.5 million to New Jersey for removal and temporary storage of radon contaminated soil.	**Completed 01/15/87**—The grant was made to New Jersey.
118(d)	07/01/87[2/]	Comptroller General to submit report to Congress on study of shortages of skilled personnel in EPA.	**Completed 10/26/87**—GAO published a report entitled *Improvements Needed in Work Force Management* (GAO/RCED-88-1).
118(f)	03/01/87[2/]	ATSDR to submit report to Congress on the nature and extent of lead poisoning in children from environmental sources.	**Completed 07/12/88**—The report entitled *Nature and Extent of Lead Poisoning in Children in the United States* was submitted to Congress.
118(j)	04/17/87	EPA to submit report to Congress on joint use of vehicles for transportation of hazardous and non-hazardous substances.	**Completed 04/20/87**—The report entitled *A Study of Joint Use of Vehicles of Hazardous and Non-Hazardous Materials* was submitted to Congress (OSWER Directive #9360.6-01).
118(k)(1)	10/17/87	EPA to submit report to Congress on radon site identification and assessment.	**Completed 02/23/90**—The report was submitted to Congress.

1/ In this matrix, requirements of CERCLA, as amended by SARA, precede requirements of SARA that do not amend CERCLA.

2/ Deadline specified in statute rather than correlated to date of enactment.

SARA Section	Statutory Deadline	Requirement	Status
118(k)(2)(A)	1/	EPA to conduct a demonstration program to test methods and technologies of reducing or eliminating radon gas and radon daughters where it poses a threat to human health.	Completed September 1985—EPA established the Radon Action Program. Since the enactment of SARA, EPA has focused its program efforts to meet the statutory mandate.
118(k)(2)(B)	02/01/87[2/,16/]	EPA to submit report on radon mitigation demonstration program.	Completed 06/12/87, 01/18/89, 02/26/90, 01/15/91—The FY86, FY87, FY88, and FY89 reports have been submitted to Congress. Ongoing January 1995—The FY90 and FY91 report are in the review process.

1/ Specific deadline not stated in statute.

2/ Deadline specified in statute rather than correlated to date of enactment.

16/ Due annually on this date beginning in 1987.

SARA Section	Statutory Deadline	Requirement	Status
118(n)(1)	04/17/87	Department of Energy (DOE) to carry out program at the Liquified Gaseous Spills Test Facility. Program to test and evaluate technologies utilized in responding to liquified gaseous and other hazardous substance spills that threaten human health or the environment.	Completed 06/30/87—A memorandum of understanding was developed among DOE, EPA, and DOT. **1990**—Determination was made of aqueous foams' effectiveness in extinguishing chlorosilane fires and vapor suppression. Determination was made of near field behavior and aerosol formation from pressurized releases of Superfund liquids. An assessment of totally encapsulated chemical protective (TECP) suits' effectiveness in very high concentrations of toxic/hazardous chemicals was made. **1991**—Testing of TECP suits continued. **1992**—Testing of TECP suits continued. Hazardous materials training was developed for spill control, mitigation, and cleanup.
118(n)(3)	1/	EPA to enter into contracts and grants with a nonprofit organization in Albany County, Wyoming, to carry out program established under CERCLA Section 118(n)(1).	Completed 1988—EPA entered into contract with the Western Research Institute (WRI) to carry out technology transfer program requirements under CERCLA Sections 118(n)(2)(A), (B), and (D). **September 1990**—DOE entered into a second contract with WRI that is scheduled to run until 1995, which continues to address requirements under CERCLA Section 118(n)(2).

1/ Specific deadline not stated in statute.

SARA Section	Statutory Deadline	Requirement	Status
121(b)(2)	11/17/86	EPA Administrator to certify in writing that RODs or consent decrees covering RAs, signed within 30 days of enactment of SARA, comply to the maximum extent practicable with Section 121 of CERCLA.	**Completed 11/17/86**—All three RODs that were signed comply; no consent decrees were lodged during this period.
126(a)	10/17/87	Department of Labor (DOL) to promulgate standards for the health and safety protection of employees engaged in hazardous waste operations.	**Completed 03/06/89**—DOL published standards (54 *FR* 9294).
126(f)	[17]	EPA to promulgate worker protection standards identical to those contained in the Occupational Safety and Health Act regulations established by DOL under CERCLA Section 126(a).	**Completed 06/23/89**—EPA published final standards (54 *FR* 26654).
205(b)	07/17/87	States to develop and submit to EPA inventories of all underground storage tanks containing regulated substances.	**Completed 07/17/87**—All 50 states submitted inventories to EPA.
205(h)	01/17/88	Comptroller General to submit report to Congress on study of the availability of pollution liability insurance, leak insurance, and contamination insurance for owners and operators of petroleum storage and distribution facilities.	**Completed 01/15/88**—GAO published a report entitled *Insuring Underground Petroleum Tanks* (GAO-RCED-88-39).

[17] Not later than 90 days after promulgation of DOL final ρεγυλατιονσ.

SARA Section	Statutory Deadline	Requirement	Status
211(a)	Annually	Secretary of Defense to submit report to Congress on progress in implementing Department of Defense Environmental Restoration Program.	Completed March 1988, March 1989, February 1990, March 1991, February 1992, April 1993—FY87, FY88, FY89, FY90, FY91, and FY92 reports were submitted to Congress.

Appendix E
Report of the EPA Inspector General

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

NOV 20 1996

THE INSPECTOR GENERAL

MEMORANDUM

SUBJECT: Review of The Superfund Annual Report To Congress
For Fiscal Years 1992, 1993 and 1994
Audit Report E1SFF5-11-0029-7100062

FROM: John C. Martin
Inspector General

TO: Carol M. Browner
Administrator

Background and Summary of Results

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 301 (h)(1), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) requires EPA (the Agency) to submit, by January 1st of each year, a report on the progress in implementing Superfund during the prior fiscal year. The Inspector General is required to review the report for reasonableness and accuracy and submit to Congress, as part of the Agency's report, a report on the results of the review (as cited in Section 301 (h)(2)).

We have completed a review of the Environmental Protection Agency's Annual Report to Congress (Annual Report), Progress Toward Implementing Superfund. This review covers fiscal years 1992, 1993 and 1994. We found that the Annual Reports for these years included the information required by the applicable statute as interpreted by the Agency. We believe the Annual Reports were generally accurate and reasonable, and displayed consistent data for the three fiscal years under review. Additionally, we followed up on our 1994 follow-up review report Superfund Performance Measures. We found that the Agency had acted on our recommendations to our satisfaction.

Objectives and Scope

The objective of our review was to determine whether the Agency's Annual Reports, Progress Toward Implementing Superfund, are reasonable and accurate, as required by the statute We began our review on September 20, 1995, and completed our work on October 31, 1996. We performed our review at EPA Headquarter's Office of Emergency and Remedial Response (OERR) in the Office of Solid Waste and Emergency Response (OSWER).

We received draft versions of each of the three Annual Reports as follows: 1) the Fiscal Year 1992 Annual Report (September 1994); 2) the Fiscal Year 1993 Annual Report (October 1995); and 3) the Fiscal Year 1994 Annual Report (May 1996). In early September, we received the Fiscal Year 1992, Fiscal Year 1993 and Fiscal Year 1994 Annual Reports that would later be sent to the Administrator for signature.

We conducted a limited scope review of the three Annual Reports to examine the internal consistency within each report and the consistencies between all three reports. We did not review CERCLIS data printouts. We did not perform in-depth audit work in the areas we examined in our past reports. Detailed reviews were reported in Consolidated Report regarding Fiscal 1992 CERCLIS Data Audit Report No. E1SFF3-11-0016-3100392, dated September 29, 1993, Reliability of CERCLIS Data: Superfund Performance Measures for Fiscal 1993 Audit Report No. E1SFF3-11-0029-4100229, dated March 30, 1994 and Follow-up Review Report No. E1SFG5-11-5005-5400014 Superfund Performance Measures, dated November 15, 1994. Due to the rigorous examinations performed during these and other previous reviews, we believe our review of the three Annual Reports coupled with the above-mentioned reports is sufficient to meet the requirements of the Act.

We began our field work by individually examining 100 percent of the numerical data in each Annual Reports' executive summary exhibits ("**Summary of Fiscal Year 1992 or 1993 or 1994 Superfund Activities**," "**Summary of Program Activity by Fiscal Year**" and "**Statutory Requirements for the Report**") and comparing the exhibits to data within the body of the Reports. We reviewed the data in each exhibit and made determinations whether that data was supported by and consistent to the data in the body of the Annual Reports. We then looked at the consistency between the three Annual Reports. We made determinations on whether Fiscal Year 1992 information in the Fiscal Year 1993 Annual Report was reasonable and consistent with information in the Fiscal Year 1992 Annual Report and used the same method of analysis for the Fiscal Year 1993 and Fiscal Year 1994 Annual Report and among the three Annual Reports. We also performed general calculations on selected data within the exhibits and body of the Annual Reports to verify their accuracy.

We also followed up on the status of actions taken on our recommendations following the issuance of our 1994 follow up review report on Superfund performance measures. We met with Agency officials to discuss their progress in completing our recommendations and obtained the relevant supporting documentation.

Results of Review

During our review of the exhibits of the three Annual Reports, we requested clarifications be made to minor portions of the Annual Reports' wording. Some of the items questioned did not warrant a change in the report; however, for those items that did require a change, the Agency agreed to the data corrections. The chart below summarizes the 26 items questioned.

QUESTIONED ITEMS IN ANNUAL REPORTS' EXHIBITS

YEAR	QUESTIONED ITEMS	SATISFACTORY SUPPORT OR CORRECTION PROVIDED
1992	4	4
1993	10	10
1994	12	12

The items we questioned were mostly ones where numbers in the exhibits did not agree with the corresponding information in the body of the Annual Reports. Other items needed further clarification with the addition of a sentence or change in wording. The Agency provided us with other supporting documents for two of the questioned items. To support the numbers in the Fiscal Year 1992 Annual Report for "Sites with Remedial Activities in Progress on September 30, 1992" and "Sites Proposed for Deletions During FY92," the Agency provided us with documentation from the Federal Register listings. Also, for the Fiscal Year 1992 Annual Report, the Agency provided us with a list indicating that 24 sites required 5-year reviews. As indicated in the Fiscal Year 1992 Annual Report, the Agency conducted 6 reviews for the fiscal year. The remainder of questioned items did not require any further action.

We also followed up on the progress of actions taken on recommendations from our 1994 follow up review report on the Superfund performance measures. We found that the Agency's documentation for a change in CERCLIS to prevent certain inaccuracies from being recorded in the system is still in draft. However, we were informed that plans in the documents were being implemented. Other actions resulting from our Reliability of CERCLIS Data: Superfund Performance Measures for Fiscal 1993 audit report, were in process or implemented at the time of our 1994 follow up review.

We were told that the Mateer model, a strategy to stress accurate data management on the part of Remedial Project Managers and On-Scene Coordinators, had been terminated. The recommendation regarding this strategy was satisfied through other actions the Agency took to improve accomplishment reporting.

The Agency took the necessary actions to correct and clarify information and obtain necessary documentation during this review. Agency officials were responsive to our inquiries concerning the Annual Reports and recommendations from the follow up review report.

Appendix F
List of Sources

The following is a list of reference sources that were used in the preparation of this Report. Sources for data used in graphics within the text are cited on the graphics and also listed below. Reference sources are listed in chronological order by the date of publication.

Statutes

Resource Conservation and Recovery Act, P.L. 94-580 (21 October 1976), 42 U.S.C. Section 6901 *et. seq.*

Comprehensive Environmental Response, Compensation and Liability Act, P.L. 96-510 (11 December 1980), 42 U.S.C. Section 9601 *et. seq.*

Superfund Amendments and Reauthorization Act, P.L. 94-580 (17 October 1986), 42 U.S.C. Section 11001 *et. seq.*

Federal Technology Transfer Act, P.L. 99-502 (20 October 1986) 15 U.S.C. Section 210 *et. seq.*

Base Closure Act, P.L. 100-526 (12 October 1988), U.S. Code: Congressional and Administrative News, Volume 5, p. 3355.

National Defense Authorization Act for Fiscal Year 1991, P.L. 101-510 (5 November 1990), U.S. Code: Congressional and Administrative News. p. 104 Stat. 1485.

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EPA. December 4, 1991. Notice to Change Policy Regarding Five-Year Reviews. 56 *FR* 66601.

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EPA. February 7, 1992. National Priorities List for Uncontrolled Hazardous Waste Sites, Proposed Rule No. 2. 57 *FR* 4824.

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EPA. April 29, 1992. National Oil and Hazardous Substances Pollution Contingency Plan; Lender Liability Under CERCLA. 57 *FR* 18344.

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EPA. October 1, 1992. National Priorities Sites List (Superfund Program); Technical Assistance Grants to Groups. Final Rule. 57 *FR* 45311.

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EPA/OSWER. October 3, 1991. Five Point Action Plan. Note from Henry Longest to All OERR Staff.

EPA/Office of Administration and Resources Management. October 18, 1991. Report on Contract Laboratory Program Review. Memorandum from Willis E. Greenstreet to F. Henry Habicht II.

EPA/OSWER. January 31, 1992. Implementation of the ARCS Task Force Recommendation: Appointment of ARCS Council. Memorandum from Richard J. Guimond and Edward Hanley to Addressees.

EPA/OSWER. February 10, 1992. Environmental Growth Initiative. Memorandum from Don R. Clay to William K. Reilly.

EPA/OSWER. February 19, 1992. Update No. 2 to the Procedures for Completion and Deletion of NPL Sites. Memorandum from Henry L. Longest II to Addressees.

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EPA/OSWER. September 4, 1992. Initiatives to Streamline the Alternative Remedial Contracting Strategy (ARCS) Contracts' Award Fee Process. Memorandum from Timothy Fields, Jr. and David J. O'Connor to Addressees.

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Appendix G
Summary of the Superfund Program [1992-1994]

The Environmental Protection Agency (EPA) is committed to accelerating the pace of hazardous waste site cleanup. As part of this commitment the Agency has concluded construction activities at 237 National Priorities List (NPL) sites over fiscal years 1992-1994.

Implementation of the Superfund Accelerated Clean-up Model (SACM), the result of the 1991 30-Day Study Task Force[1] recommendations to streamline the activities in the clean-up process, changed the paradigm of doing business in Superfund. SACM allows for rapid reduction of risks at Superfund sites and restoration of the environment over the long term. SACM introduced significant improvements to the existing clean-up process by:

- eliminating sequential and duplicative studies as site assessment and investigation activities are combined;
- removing the existing overlap between the types of clean-up actions done under the Superfund removal program and those done under the remedial program, to save time and money; and
- redefining Superfund clean-up actions as early actions and long-term actions with complementary applications.

EPA Regions initiated SACM pilot projects during fiscal year 1992 to explore the benefits of the new clean-up model. The model implementation efforts continued through fiscal year 1993 to be fully operational in 1994.

[1] Superfund 30-Day Task Force Report; Accelerating Superfund Cleanups and Evaluating Risk at Superfund Sites. July 19, 1991.

The 30-Day Study Task Force also made a number of recommendations which have provided the framework for the continuous efforts to accelerate the pace of cleanup and streamline the Superfund program. Key recommendations implemented in fiscal year 1992 included:

- streamlining remedy planning, selection, and design;
- development of presumptive remedies, technology-based standards, and soil-trigger levels to standardize remedy planning and selection;
- shortening the remedy design phase for sites where the extent of remedial action cannot be readily determined;
- facilitate the resolution of site-specific issues that commonly cause delays in the clean-up process; and
- accelerating private party clean-ups.

The Agency also implemented measures to improve other aspects of the Superfund program:

- A National Superfund Director was appointed and the Superfund Revitalization Office created to strengthen program management and accountability, improve the effectiveness and efficiency of Superfund clean-up and administration, and ensure equity in Superfund enforcement.
- To better balance its environmental mission with effective contract management, the Agency

focused on improving contract management and accountability, eliminating excess contract capacity, controlling costs and securing quality work from contractors.

- A National Superfund Risk Management Workgroup was established to review Superfund risk assessment guidance and characterization practices, target areas needing improvement and coordination with other programs, and promote consistency in deciding the appropriate clean-up actions for sites.
- Demonstration of innovative treatment technologies and centralized access to information was designed to promote increased use of the technologies.
- New measures of Superfund progress and the development of informative publications enhanced public outreach and communications.

In fiscal year 1993, the Agency continued progress in improving the effectiveness of the program by further refining initiatives and identifying administrative changes that could be made within the existing statutory and regulatory framework. Continuing initiatives included preparing for full implementation of SACM and pilot projects to develop a single site assessment process and defining the role of the Regional decision teams. Other efforts included focusing resources on completing the evaluation and clean-up of sites, ensuring effective management of contracts and promoting consistency in assessing and managing risk. A special Superfund Administrative Improvements Task Force identified seventeen specific areas centered around four themes:

- Promoting enforcement fairness and reducing transaction costs;
- Enhancing clean-up effectiveness and consistency;
- Promoting increased community involvement and ensuring environmental justice; and
- Strengthening the role of the states.

Commencing in fiscal year 1993 and continuing on to 1994, the Agency successfully encouraged potentially responsible parties (PRPs) to undertake and finance clean-up efforts at Superfund sites. By the end of fiscal year 1994, PRPs were leading more than 75 percent of remedial designs (RDs) and remedial actions (RAs) started during the fiscal year.

Fiscal year 1994 initiatives anticipated the reauthorization of the CERCLA taxing authority and an opportunity to propose revisions to other provisions of the statute. The Agency focused efforts on identifying possible legislative amendments that would improve the efficiency and equity of the program. The Agency solicited input from advisory committees, stakeholders, and Agency and inter-Agency work groups to draft proposed legislation. The focus of the proposed legislation was on enhancing community involvement, expanding the role of states, reforming the remedy selection process, pursuing liability reforms to reduce transaction costs and increase fairness and create a fund, the Environmental Insurance Resolution Fund, to resolve coverage disputes between PRPs and their insurers.

Working within the existing statutory and regulatory framework, the Agency also continued to implement the recommendations of the 1993 Superfund Administrative Improvements Task Force as well as on-going initiatives including implementing SACM, achieving construction completion at sites, strengthening contracts management, promoting enforcement first, accelerating clean-up at military bases slated for closure, promoting the development and use of innovative technologies, enhancing compliance monitoring, and improving the effectiveness of cost recovery. The Agency set and achieved a goal to implement most of the task force's recommendations by the end of fiscal year 1994.

The major areas of progress in the Superfund Program include: Site Evaluation, Removal, Remedial, Enforcement, Federal Facility Clean-ups and Superfund Program Support activities.

Site Evaluation

Over the past three fiscal years, 1992-1994, EPA's progress in identifying and assessing newly discovered sites has resulted in a total of over 38,300 sites identified in the CERCLA Information System (CERCLIS). CERCLIS is the Superfund inventory of potentially threatening hazardous waste sites.

Based on evaluation of 94 percent of the sites identified in CERCLIS for potential threats, EPA has determined that 1,355 of those sites should either be proposed to, listed on, or deleted from the NPL. To date, a total of 64 sites have been deleted from the NPL.

During the 1992-1994 time period the Agency has undertaken projects to address the technical complexities associated with both lead- and radionuclide-contaminated sites. The Integrated Exposure Uptake Biokinetic Model (IEUBK) and the Three City Lead Study have been used to assess lead contamination. The IEUBK model is a tool to aid the development of risk assessment procedures for lead contaminated soil. The Three City Lead Study will determine whether a reduction of lead in residential soil will result in a decrease of blood-lead levels in children exposed to the contaminant. To improve assessment of sites involving radionuclide contamination, EPA generates guidance documents for conducting assessments, conducts technology demonstrations and increases Headquarters assistance to the Regions.

Removal

To protect human health and the environment from immediate or near-term threats, the Agency and potentially responsible parties (PRPs) started nearly 1,000 removal actions and completed more than 870 during the fiscal years 1992-1994. More than 3,660 removal actions have been started and nearly 3,050 have been completed since the inception of the Superfund program.

Since 1992, the removal authority for "early actions," has been expanded to reduce immediate risks and expedite cleanup at NPL sites. The expansion was a key element of SACM. Early actions may include emergency, time-critical or non-time critical removal responses or quick remedial responses. By the end of 1994, EPA had piloted the early actions approach at 38 sites. Under the reportable quantities (RQ) regulatory program, the Agency promulgated final RQ adjustments for 62 hazardous substances and added 5 to the list. The Agency also continued to work on regulations to establish administrative reporting exemptions for naturally occurring radionuclide releases.

Remedial

Accomplishments during fiscal years 1992-1994 reflect the Agency's continued efforts to accelerate the overall pace of clean-up and complete clean-up activities at an increasing number of sites. During the period clean-up activities resulted in the placement of 217 additional NPL sites in the construction completion category for an overall total of 278 NPL sites in the category. Also started by the Agency or PRPs were nearly 220 remedial investigation/ feasibility studies (RI/FSs), more than 410 remedial designs (RDs), and more than 350 remedial actions (RAs). The Agency signed 359 records of decision (RODs) at Fund-financed or PRP-financed sites.

Efforts to implement the 1991 30-Day Study continued during the 1992-1994 period and included development of presumptive remedies for municipal landfill, wood-treating, contaminated ground-water, solvent contaminated sites, and issuing policy for technical impracticability waivers. The Superfund Innovation Technology Evaluation Program and others designed to provide technical assistance, information and training were also encouraged for use at Superfund sites.

Towards the end of the period, the 1993 Administrative Improvements Task Force was a significant influence in the progress of remedial activities. The Agency:

- Demonstrated presumptive remedies developed for municipal landfills and sites contaminated with volatile organic compounds, while working to develop presumptive remedies for wood-treater, polychlorinated biphenyl, manufactured-gas-plan, grain storage, and polluted ground water sites;
- Released draft soil screening levels (SSLs) for 100 chemicals commonly found at Superfund sites;
- Implemented guidance for addressing Dense Non-Aqueous Phase Liquids (DNAPL) contamination of ground water and for invoking the technical impracticability waiver where performance standards cannot be achieved.

Enforcement

Accomplishments during the 1992-1994 period reflect the Agency's continuous commitment to maximize PRP involvement in financing and conducting cleanup and recovery of Superfund monies expended for response action. Over the three year period, the Agency has achieved enforcement agreements worth more than $3.3 billion in PRP response work. Through its cost recovery effort, EPA achieved approximately $676.6 million in settlements and collected more than $570.3 million for reimbursement of Superfund expenditures. By the end of fiscal year 1994, the Agency has collected over $5.7 million in CERCLA penalties.

The Agency has been working towards improving the efficiency and fairness of Superfund enforcement and through SACM, Administrative Improvements and promotion of "enforcement first" to secure PRP involvement in financing a significant goal has been to seek to reduce transaction costs. Over the three years *de minimis* settlements and most recently "de micromis" settlements have been encouraged as well as an increased use of alternative dispute resolution and increased use of mixed funding (EPA + PRP).

Federal Facility Clean-up

Federal departments and agencies are largely responsible for implementing CERCLA at Federal Facility sites. To ensure Federal Facility compliance with CERCLA requirements, EPA provides advise and assistance, oversees activities, and takes enforcement action where appropriate. At sites on the NPL, EPA must concur in remedy selection. By the end of fiscal year 1994 there were 1,945 Federal Facilities sites identified on the Federal Agency Hazardous Waste Compliance Docket. Of the sites on the docket, 160 were proposed to or listed on the NPL, including 150 final and 10 proposed sties.

During the 1992-1994 period the closure of military bases became an important issue. The President announced a Five-Point Plan in 1993 to accelerate the economic recovery of communities near military bases scheduled for closure. Through 1994 the Agency, in conjunction with the Department of Defense, states and local citizens, implemented the Fast Track Clean-up Program to expedite cleanup and reuse of bases scheduled for closure. Guidance was issued that identified SACM components that provide opportunities for speeding cleanup.

Superfund Program Support

Throughout 1992-1994, EPA has taken measures to enhance support activities in the Superfund program, including efforts to improve community relations, enhance public access to information, strengthen EPA's partnership with states and Indian tribes, and increase minority contractor utilization.

In its community involvement efforts, EPA tailors activities to the specific needs of individual communities and identifies ways to enhance community involvement efforts. The Agency emphasized the importance of effective community involvement in its administrative improvements and reauthorization efforts. The Agency also continued to provide technical outreach to communities, hold national conferences on community involvement, offer training and workshops, and facilitate community access to technical assistance grants (TAGs). To aid communities in obtaining technical assistance, EPA awarded 85 TAGs during the 1992-1994 fiscal years, bringing the total number of TAGs awarded since FY88 to 151, for a total worth more than $8.6 million.

To enhance public access to Superfund information, the Agency continued its partnership with the National Technical Information Service (NTIS), which provides Superfund document distribution services. The Agency has expanded the Superfund document collection available through NTIS, continued outreach to inform the public of the services available, and began implementing a communications and outreach plan using NTIS services.

To support state and tribal involvement in the Superfund response activities, EPA has awarded nearly $1.3 billion in cooperative agreements (CAs), including $79 million awarded in FY94 through site-specific CAs.

Overall, EPA has granted Core Program CAs (CPCAs) worth nearly $103 million in its continuing efforts to assist states and tribes in developing comprehensive Superfund programs.

To promote small and disadvantaged business participation in Superfund contracting, EPA, through direct and indirect procurement, awards contracts and subcontracts to minority contractors to perform Superfund work. Direct procurement involves any procurement activity in which EPA is a direct party to a contractual arrangement for supplies, services or construction. Under financial assistance programs (indirect procurement), EPA awards grants and/or cooperative agreements to states, local municipalities, universities, colleges, non-profit or profit-making institutions or firms, hospitals and individuals or otherwise known as recipients. This amount represents more than 4.3 percent of the total dollars obligated to finance Superfund work during the year.

Resource Estimates

Under Executive Order 12580, EPA is required to estimate the resources needed to implement Superfund. Since the enactment of CERCLA in 1980, Congress has provided Superfund with $13.6 million in budget authority (FY81 through FY94).

Estimates of the long-term resources required to implement Superfund are based on the Outyear Liability Model (OLM). The OLM estimate of the cost of completing cleanup of current NPL sites is more than $17.4 billion for FY95 and beyond, bringing the total estimated cost for the program to $31.0 billion.